The Milroy Lectures

ON

THE NATURAL HISTORY AND AFFINITIES OF RHEUMATIC FEVER: A STUDY IN EPIDEMIOLOGY.[1]

Delivered at the Royal College of Physicians of London on March 5th, 7th, 12th, and 14th, 1895,

BY ARTHUR NEWSHOLME, M.D. LOND.,

MEDICAL OFFICER OF HEALTH OF BRIGHTON.

LECTURE I.

Delivered on March 5th.

MR. PRESIDENT AND GENTLEMEN,—My first duty is to express my thanks for the honour conferred upon me by the Royal College of Physicians in electing me Milroy Lecturer for 1895. The subject selected by me for these lectures has rendered the honour one involving arduous and protracted research; and the conclusiveness of my results is necessarily limited by the imperfections of the data with which I have had to deal. If, however, in such an inquiry one were to wait until the statistical data available were perfect and complete there would be but little hope of new light; and it is, I think, the duty of the medical statistician and epidemiologist to use to the best advantage the imperfect materials in his possession, as by so doing he will at least learn how the materials may be rendered more useful for his special purposes. He will also advance the subject by paving the way for further inquiries, and may with due caution (and with full confession of the defects of his own data) hope to throw some new light on important questions of causation.

Dr. Farr early in his official life included rheumatic fever among zymotic diseases, thus formally stating his adhesion to the view that it was due to a *materies morbi* introduced into the blood from without and leavening the whole circulating fluid. On Dr. Farr's death the Registrar-General relegated rheumatism to the class of constitutional diseases, where it still remains. In the second edition (dated 1885) of the Nomenclature of Diseases of the Royal College of Physicians, the joint committee, with greater caution, have placed it in the fourth order of general diseases, among "Morbi non in Classes Distributi." The influence of the nervous system on the joints has been investigated by Charcot, Ord, Buzzard, and many other observers, and appears to be foreshadowed in the old classification of rheumatism among the dolores. In view of the close association existing between Charcot's joint disease and definite lesions of the nervous system, and surmised to exist in rheumatoid arthritis, if not also in gout, it is not surprising that there are many who still hold that rheumatic fever is due to reflex nervous irritation, a view which is endorsed by Dr. Donkin in his recently published scholarly treatise on Children's Diseases. Dr. Donkin regards rheumatic fever as "in all probability essentially due to a faulty condition of the nervous system, for the most part inherited, which expresses itself in various inflammatory and other modes in ready reaction to diverse impressions upon the nervous periphery, among which 'chill' is probably to be regarded as chief." He adds: "It must be admitted that its clinical facts and conditions seem highly unfavourable, if not contradictory, to any hypothesis of germ origin."

In investigating the history of rheumatism it is plain that much mental confusion has arisen from the absence of a rigid definition of the word. The etiological elements proper to gout have been confused with those peculiar to rheumatism; and when this phase had been theoretically passed—practically we are still involved in it—there remained the common use of the word "rheumatism" for such diverse conditions as—(*a*) acute articular polyarthritis; (*b*) chronic articular rheumatism; (*c*) painful affections of the fibrous sheaths of muscles and nerves; (*d*) rheumatoid arthritis, and possibly several other morbid conditions of joints which are not yet clearly differentiated. I propose to restrict myself strictly to rheumatic fever (acute and subacute rheumatism), at least until the affinities of the disease come to be considered; and by rheumatic fever I mean a disease in which there are pain and swelling of the joints, preferably of the larger joints, accompanied by fever, the joint affection having a migratory character, and usually yielding rapidly to treatment by salicylates, but liable to complicating inflammation of the pericardium or other visceral serous membranes.

Having given a definition which sufficiently indicates the scope of our inquiry, we are in a position to pursue that inquiry. The thesis, which will be advanced and supported by such evidence as is available, is that rheumatic fever is a specific febrile disease, caused by the introduction from without and multiplication in the system of a pathogenic micro-organism; that it is endemic in Europe and America and other parts of the world, but at varying intervals becomes excessively prevalent, in a manner which can only rightly be described as epidemic and even pandemic. Such a view of the causation of rheumatic fever does not cover the entire ground. Assuming that rheumatic fever only occurs when a special pathogenic micro-organism is introduced into the blood, its causation is by no means exhausted. It occurs chiefly or only in predisposed persons, in certain states of health, and under the influence of certain excitants—as fatigue, injury, and chill, the exact value of which in its causation will be hereafter discussed. Further, it occurs by preference at certain seasons of the year, in certain localities, or perhaps on certain soils. It has probable relationships with weather, climate, and ground water. We have to consider, on the one hand, the influences determining an individual attack of rheumatic fever; and, on the other hand, the wider influences determining the extent of its varying prevalence in different countries in successive years. A neglect of any of these factors will give but a distorted view of the true causation of the disease. Bacteriological studies, far from being the negation of traditional etiology, are but the logical outcome of it; and secondary causes, especially in such a disease as rheumatic fever, still maintain their traditional value as the indispensable concomitants of microbes. We have to consider not only the essential *causa causans* but the *causa efficiens*, consisting of the combined favouring influence of personal constitution and conditions of environment, which Colin has named "le milieu épidémique."[2] Mr. Justice Fry says: "There is, so far as I know, no physical or logical distinction between principal and minor causes or between cause and conditions in the case of two or more constituent parts of a cause, each of which is necessary, and none of which is by itself sufficient."[3] This is particularly true of rheumatic fever, in which the intracorporeal condition or personal constitution and the extracorporeal conditions or environment loom larger in our mental vision than the actual infection. It would be difficult to conceive any natural condition of personal resistance or environment that would prevent a person inoculated with the virus of anthrax from being attacked by the disease. This disease and rheumatic fever may be regarded as typifying the terminal items in a long list of diseases, in which (*x*) infection, (*y*) personal resistance, and (*z*) environment play *rôles* of relatively greater or less importance. Suffice it for our present purpose that the real cause of rheumatic fever is the resultant of a combination of causes, which must all engage our attention. They may be classified as follows:—

I. *The active infective agent.*—Evidence derived from (*a*) epidemiology; (*b*) clinical history and analogies; and (*c*) bacteriology.

II. *Conditions of environment.*—Climate, geography and geology of the disease, season, weather, and ground water.

III. *Personal factors.*—Age and sex, constitution, temperament, heredity, previous disease, injury, fatigue, chill, occupation, diet, and race.

THE EPIDEMIOLOGY OF RHEUMATIC FEVER.

Various epidemics of rheumatic fever have been described by Pringle in the campaigns in Flanders and Holland in the middle of the eighteenth century, by Stoll in Vienna, 1776–79; by Mertens, 1782–83, and by others. Besnier,[4] however, thinks that these epidemics may have been influenza in which rheumatic symptoms occurred, and it cannot be said that the descriptions of them leave no doubt as to their

[1] Dr. Newsholme's lectures were copiously illustrated with diagrams which we do not reproduce, as his figures and deductions tell the tale sufficiently.

[2] Article on Épidémié: Dictionnaire Encyclopédique.

[3] Nature, Nov. 1st, 1894.

[4] Article on Rheumatisme: Dictionnaire Encyclopédique des Sciences Médicales, p. 463.

nature. The tendency of modern observation has been distinctly to deny the occurrence of such epidemics. Thus Kelsch[5] says these "accidental excesses do not evolve like true epidemics, not having their amplitude or cyclical regularity or course," though he admits that, failing true epidemics, "rheumatism shows oscillations independent of atmospheric influences." Professor Senator of Berlin[6] notes that "in certain years the disease is so unusually prevalent in a particular country as to assume the character of an epidemic." He adds that "some of the older writers on medicine actually speak of 'epidemics of rheumatism,' though the essential feature of an epidemic disease—infective power—is wanting in rheumarthritis." Dr. Longstaff[7] has noted the occurrence of four periods of excessive mortality from scarlet fever in England and Wales, which are shared more or less by "rheumatism accompanied with heart affection," erysipelas, pyæmia, puerperal fever, and five other diseases. Lange in Copenhagen, Chomel and Hirsch in Berlin, Fieldler in Dresden, and Lebert at Zürich among others have described local outbreaks which appeared to deserve the designation of "epidemic." There has, however, so far as I am aware, been no wide and thorough investigation of the epidemiology of rheumatic fever. It becomes necessary *in limine* to define the meaning we attach to the word "epidemic." Senator evidently regards "infective power" as an essential element in the definition; and this limitation has the highest authority in medical works. We propose, however, to use the term as applied to rheumatic fever simply to designate its relative prevalence. When it is prevalent above the average amount the disease is epidemic, though for convenience we shall arbitrarily only speak of an epidemic when the excess above the preceding minimum is at least 40 per cent. It must be left to this audience to decide from the evidence to be adduced whether in the more restricted sense of possessing infective power rheumatic fever is worthy to be described as an "epidemic" disease, or whether climatic or other causes account for the variations in its prevalence in different years. The difference between "epidemic" and "pandemic" is obviously simply one of degree. We naturally turn first to our national death returns to ascertain whether they show any evidence of epidemicity. The excess or deficiency from the mean death-rate from rheumatism in England and Wales for the whole period 1851–92 has been plotted out, so that the percentage excess or deficiency of the death-rate for any one year can be seen at a glance. The same method has been adopted in nearly all the subsequent diagrams, and they are all thus reduced to a common scale. The method of reading the diagram may be thus illustrated. In 1875 the curve was at 142—i.e., 42 per cent. above the mean line. The next preceding minimum was in 1873, when it was 90, or 10 per cent. below the mean line. The range between these two was therefore 52 per cent.

The mean death-rate from rheumatism in England and Wales during the whole period 1851–92 was 119 per million persons living. In the diagram it will be seen that the death-rate in 1855 was 15 per cent. higher, that in 1859 it was 18 per cent. higher, that in 1864 it was 23 per cent. higher, that in 1869 and 1870 it was 18 per cent. higher, and that in 1875 it was 52 per cent. higher than in the respective minimum years next preceding the above years—viz., in 1854, 1857, 1862, 1867, and 1873 respectively; and that in 1885, in 1887, and in 1890 there was evidence of smaller rises in the rheumatismal death-rate. We are not concerned at present with the general advancing wave of rheumatismal mortality from 1851 to 1875, nor with the question as to how far improved certification of deaths accounts for it; nor are we concerned with the receding wave from 1875 to the present time. The oscillations alone concern us. It cannot be maintained that varying accuracy of death certification would account for these, as any alteration in this respect would be gradually effected and not by fits and spurts. It may, however, be objected that the curve deals with "rheumatism" and doubtless includes several diverse diseases. This is so; but from 1881—when in the official reports "rheumatism" was subdivided into (*a*) rheumatic fever and rheumatism of the heart, and (*b*) rheumatism—until 1890 the first of these formed 73·5 per cent. of the whole number. It is evident therefore that rheumatic fever is the predominant partner, and we may reasonably assume that the oscillations shown in the diagram approximately correspond with, though they are less marked than, the variations in the death-rate from this disease. The curve for rheumatism in London shows similar maxima to that for England and Wales in 1864, 1868, 1875, and 1884. The 1868 maximum takes the place of the 1869–70 maximum for England and Wales, and a maximum for 1884 that of 1885. The curves for provincial towns like Birmingham and Salford resemble the above. Among foreign death returns we may select Paris and Berlin for comparison. Both these agree with the English returns in showing a high maximum in 1875. The Berlin curve, which relates to rheumatic fever alone, runs nearly parallel with that for London, which includes all forms of rheumatism, the chief difference being that the zigzags, as might have been expected from the smaller scale of the statistics, are more violent in the Berlin than in the English diagram. It would be easy to give other curves similar to the preceding, but I refrain from further pressing the evidence so far as it relates to deaths from rheumatism, even in towns where rheumatic fever can be accurately separated from other forms of rheumatism. Rheumatic fever is a disease with a very small case mortality. From a paper by Dr. Bryant on Hyperpyrexia in the Guy's Hospital Reports we quote the following evidence on this point: "Dr. Pye-Smith[8] states that the average mortality in acute rheumatism from all causes is 3 to 3·7 per cent. Of 400 Guy's cases collected by him the mortality was 3·75 per cent. Of the 655 cases collected by the Investigation Committee[9] in 1888, 22, or 3·3 per cent., died. Peacock[10] collected 394 cases from the St. Thomas's Hospital Records, of which 6, or 1·5 per cent., were fatal. Syers[11] collected 500 cases, of which 15, or 3 per cent., were fatal."

The above percentages seem somewhat high, and they are not confirmed by Dr. Southey's cases in St. Bartholomew's Hospital in the years 1861–75 inclusive.[12]

Age.	Number of cases.	Number of deaths.	Deaths per cent.
Under 10 years	88	3	3·4
10–15 years	399	6	1·5
15–25 ,, ...	2061	30	1·4
25–35 ,, ...	1203	11	0·9
35–45 ,, ...	698	5	0·8
Above 45 years	469	2	0·4
Total	4908	57	1·16

It is probable that the fatality varies in different years; it is evident that it varies greatly with the age of patients attacked. There is, furthermore, evidence that the tendency to complications varies in different epidemics and at various seasons. For these, among other reasons, it is desirable to base conclusions as to the yearly prevalence of rheumatic fever on cases of the disease rather than on deaths from it. In most countries this can only be done through hospital records. The value of this mine of information for epidemiological research is not yet appreciated as it deserves. In connexion with the present inquiry I have collected for a long series of years the statistics of rheumatic fever in the chief general hospitals of Great Britain, and of some of the European and American cities. A few remarks must be made as to the method of employing these statistics. (*a*) The population of the towns from whose hospitals the returns were secured was usually an increasing one; and it was not certain that the available hospital beds would increase in the same proportion, though this was usually the case. In order to overcome this difficulty it was assumed that in any well-regulated hospital a case of rheumatic fever would always be admitted as soon as application was made; hence the proportion between the number of cases of rheumatic fever and the total medical admissions in each year would form a trustworthy index of the amount of rheumatic fever in the given town or district, assuming the social conditions of the population to remain fairly constant. It is easy to carp at this assumption, but I think it is perfectly justifiable; and although I shall not trouble you with these minute details I may state that its substantial accuracy in all doubtful cases has been confirmed by comparing the curve

[5] Kelsch, p. 316.
[6] Ziemssen's Cyclopædia, 1887, vol. xvi., p. 11.
[7] Transactions of the Epidemiological Society, 1880.
[8] Fagge and Pye-Smith, op. cit.
[9] Brit. Med. Jour., 1888, vol. i., p. 401.
[10] St. Thomas's Hospital Reports, 1879, vol. xi.
[11] THE LANCET, 1888, vol. i., p. 1292.
[12] St. Bartholomew's Hospital Reports, 1878, vol. xiv.

secured by this method with the curve based on the original figures, and with a curve based on the ratio between the admissions for rheumatic fever and the population of the town. As we proceed I shall have to show curves constructed by each of these three methods in illustration of this point. (*b*) A more serious difficulty is to secure hospital returns in which the cases are uniformly classified throughout the whole period. Resident medical officers and registrars frequently change, and their methods of classification vary. One of the greatest difficulties has been to determine how to tabulate "subacute" rheumatism. Whenever there has been doubt experimental curves have been made, and by this means it has been possible to detect—when subacute rheumatism was absent from the return—whether it had been diverted into the column of "chronic" or "acute" rheumatism. Due weight has been given to all these factors, and it is believed that the curves on which my main conclusions are based approximately represent the truth. It must be remembered that in the present connexion we have nothing to do with the actual amount of rheumatic fever in a given hospital as compared with other hospitals. Each hospital is considered by itself, the records only being trusted in respect of the excess or deficiency of the case-rate in this hospital from the average case-rate for the same hospital over a whole series of years. The return supplied by Dr. Herringham from St. Bartholomew's Hospital, London, gives an excellent sample of the difficulties connected with classifying the returns, though I think that any competent person will confess that the truth would be equally reached, were one to take the total rheumatism curve or the curve for acute and subacute rheumatism, or that for acute rheumatism only. It will be found later that by having returns of both rheumatic fever and total rheumatism it has been possible to fill in blanks in curves of the former with a fair degree of accuracy. (*c*) It may be questioned whether as large a proportion of the cases of rheumatic fever occurring in the community find their way into hospitals as formerly. Dr. Warren, according to Watson, when asked what was good for rheumatic fever, said "six weeks." Now the pyrexial stage of rheumatic fever may under the salicylate treatment be brought to an end in seventy-two hours and the patient be discharged within two or three weeks. The shorter duration of treatment has probably enabled a larger proportion of patients to be nursed at home, and may explain a large share of the decline in hospital incidence of rheumatic fever in London shown by the curves. Whether this is so or not, such a gradually operating cause will not invalidate conclusions that may be drawn from the oscillations displayed by the downward curve. (*d*) As many of the returns go back as far as 1865, it is probable that in the early years there was some confusion with gout and rheumatoid arthritis. These errors would only serve to diminish the apparent oscillations of the curve and to affect the relative position in regard to the mean line for the whole period, and would not invalidate conclusions drawn from these oscillations.

We now proceed to discuss the hospital curves, starting first with those for London.

The curve for St. Bartholomew's Hospital shows a steadily increasing amount of rheumatic fever from 1867, when the record commences the maximum year 1874 (= 224), after which it declines to a minimum of 83 (mean =100) in 1879. Between these two points, in 1871 there was a temporary ebb in the advancing tide (132 as compared with 160 in 1870). The marked decline in the curve from 1877 onwards, broken only in 1881 and 1885 by minor rises, may indicate that we have not reached the time for another great epidemic of rheumatic fever, or, as previously suggested, that hospitals are not used to so great an extent as formerly by rheumatic fever patients. The latter supposition would, I think, only explain a portion of the decline; the former supposition is favoured by the fact that the death-rate from rheumatism in London has never since risen so high as it was in 1875. We are bound to conclude that since 1875 in the districts from which St. Bartholomew's Hospital draws its patients there has been a much smaller amount of rheumatic fever than in the nine preceding years.

The statistics from St. Thomas's Hospital are somewhat confused owing to the fact that between 1862 and 1871, when the new hospital on the Thames embankment was opened, the establishment had to be carried on temporarily in Surrey-gardens. It is possible that under these circumstances more urgent cases, including rheumatic fever, were preferentially admitted, and this may partly account for the very early maximum attained by the rheumatic fever curve at this hospital. The statistics for rheumatic fever separately are unfortunately wanting for the years 1869, 1870, 1871, and 1875. By constructing a curve for the same years for all forms of rheumatism we can, however, supply the missing links with a moderate degree of accuracy. Without laying stress on the early maximum in 1868-70 (for the reasons already stated), it is evident that, as at St. Bartholomew's Hospital, rheumatic fever was excessive in amount from 1866 to 1877, there being a slight lull in 1872 instead of in 1871 in St. Bartholomew's Hospital. Smaller rises above the mean line occurred in 1881 and in 1884, since which time there has been an uninterrupted drop.

The Westminster Hospital records only begin with 1870, and there is the further complication that subacute rheumatism is sometimes classed with acute and sometimes with chronic rheumatism. It is probable also that the rise in 1877 is exaggerated, as the total number of medical patients in that year was only 518 as compared with 873 in the preceding and with 836 patients in the succeeding year. Apart from this, the teaching of the curves, of which the one for total rheumatism is the most trustworthy, is obvious. It will be seen that there was an epidemic of rheumatic fever in 1870, which continued with the remission shown in the preceding curves until the end of 1875. A further rise occurred in 1884 of sufficient magnitude to be dignified by the name of an epidemic, and there was some evidence of a later increase of rheumatic fever in 1887. The rise in 1884 was greater in the experience of Westminster Hospital than of St. Thomas's Hospital, and at St. Bartholomew's Hospital it did not occur (and then only to a slight extent) until 1885. Judging by the rheumatic fever curve, this disease was more prevalent in the district served by the Westminster Hospital in 1884 by 60 per cent. than in the preceding minimal year (1882), and by 95 per cent. than in the succeeding minimal year (1886). At St. Thomas's Hospital in 1884 rheumatic fever was 40 per cent. higher than in the preceding minimal year (1883) and very much higher than in any succeeding year.

The Middlesex Hospital curve begins in 1867. It is characterised throughout by smaller amplitude than those already considered, though resembling them in essential particulars. The maximum, like that for St. Thomas's Hospital, was reached in 1868. Next year there was a fall, which is seen in a minor degree in the curves for St. Bartholomew's and St. Thomas's Hospitals. There was a second drop in 1872-3 from the peak of 1871, a third peak being reached in 1874 and a fourth in 1877. A further rise occurred in 1880 of 39 per cent. above the minimum of 1879; and in 1884 the amount of rheumatic fever was equal to that of 1880, but without a very great depression in the interval.

The University College Hospital curve begins in 1872 above the mean line. It touches it in 1873, and then rises rapidly to a maximum in 1876, two years later than in the more southern and central hospitals. At the Middlesex Hospital, which is nearest to it, there were maxima in 1874 and 1877. This later maximum in the University College (or North London) Hospital would lend itself to the hypothesis of an advancing northern wave of infection, very slow travelling, which started south of the Thames and probably (as we shall shortly see) in the East of London. The minimum of the University College Hospital curve following on the great epidemic occurred in 1879, as in all the other metropolitan hospitals where the records for this year are obtainable. The corresponding minimum in the metropolitan death-rate from rheumatism was in 1878-9. The 1884 rise is shown by the University College Hospital, as well as by the St. Thomas's, Middlesex, and Westminster Hospitals.

In the London Hospital curve the years 1867, 1869-70, are missing; but there was an excess of 90 per cent. in 1868 over 1866,[13] while the 1874 rise was a comparatively small one. Unless some unknown details of hospital administration (as at St. Thomas's Hospital) account at least in part for this, there was an early maximum in 1868 (as also in the Middlesex and St. Thomas's Hospitals) as contrasted with the later maximum in 1874 in most other metropolitan hospitals. Stress need not be laid on this point, but it is evident that in all the metropolitan hospitals there were two chief maxima in the period 1866 to 1878—viz., in 1868 and in 1874-5—some having one and some the other. These obviously correspond with similar maximum death-rates from rheumatism in London in 1868 and in 1875. The London Hospital curve further differs

[13] Since the above was written I learn that for several months in 1866 the only medical cases admitted to the London Hospital were cases of cholera. This would vitiate the ratio for that year.

from all the other curves in showing no general decline in the ratio of admissions for rheumatic fever. Whether this is due to social conditions or to a diminution of rheumatic fever in other parts of London which is not shared by the London Hospital, I am unable to say.

The St. George's Hospital curve has been constructed from the rheumatic fever cases without reference to any deviation from an average line or to the total number of medical cases each year (the latter not having been secured). It is interesting to find that, thus formed, the curve confirms the general accuracy of the preceding curves. There is a maximum of rheumatic fever in 1868, another in 1874–5, and another in 1884. The curve is further interesting as showing an earlier maximum in 1865 which probably represents a portion of an earlier epidemic of rheumatic fever in London indicated by a high death-rate from rheumatism in 1864–5.

Having now examined the curves for individual metropolitan hospitals (such as had available statistics), we are in a position to combine the picture without risk of losing the lessons derivable from its individual parts. It is impossible to make a continuous curve for all the preceding seven hospitals. The combined curve therefore represents the experience of a varying number of hospitals as stated at its foot. Beginning in 1865 with a smaller amount of rheumatic fever than the recent epidemic year of 1893, the curve at once begins to rise rapidly, reaching its chief maximum in 1868 (St. Thomas's is one of the three hospitals concerned in this part of the curve, and the fallacy in connexion with its records must be remembered). A remission in 1869 was followed by a second maximum in 1870. In 1871 occurred a second remission continuing to a less degree in 1872–3, a third maximum being reached sharply in 1874. Then followed an uninterrupted decline to the minimal years of 1878 and 1879. After this there occurred at shorter intervals the lower maxima of 1881, 1884, 1887, 1890, and 1893, with the intervening minima in 1883, 1886, 1889, and 1891. From 1889, when the amount of rheumatic fever was lower (as measured by hospital cases) than in any other year on the chart, there has been a somewhat steady rise. A general inspection of the chart appears to show an elevated plateau with minor undulations from 1868 to 1874, and then a sloping declivity, also with minor undulations, from 1874 to 1889. The London death-curve shows a similar, though less pronounced, direction; but there is a more marked valley between 1868 and 1875 than in the hospital curve. It may be surmised that we have since 1889 commenced the upward gradient of a second similar long wave; but whether this is so or not time alone can tell.

[Dr. Newsholme went through the records of many of the most important provincial hospitals in a similar manner, pointing out that in many cases statistical data were very imperfect. No distinction at some institutions had been made between acute and chronic cases, and the records in some extended much further back than in others. Records, however, from Bath, Bristol, Cambridge, Leicester, Birmingham, Sunderland, Newcastle, Liverpool, Manchester, Sheffield, Leeds, Bradford, and Hull, among others, afforded useful, if sometimes contradictory, information. In Scotland some of Dr. Newsholme's curves were based on a larger number of cases. From Ireland the information was meagre.]

LECTURE II.

Delivered on March 7th.

MR. PRESIDENT AND GENTLEMEN,—Having exhausted Great Britain and Ireland, we next consider the incidence of rheumatic fever in foreign countries, so far as trustworthy data are forthcoming. The returns from Scandinavian countries are exceptionally complete, as medical practitioners in these countries are required periodically to report to the authorities on the nature of the cases of illness coming under their charge. Dr. Beutzen, the Stadtphysikus for Christiania, has supplied me with the very valuable statistics for that city, and I have extracted the cases notified in the whole of Norway from the yearly volumes of the *Beretning om Tandhedstilstanden og Medicinalforholdene i Norge*. The return from Christiania deals with 8577 cases of rheumatic fever compulsorily notified in the thirty-three years 1861–93. All cases are thus compulsorily notified by the medical attendant. The curve shows that there was a first epidemic reaching its maximum in 1864, when the amount was 70 per cent. above the preceding minimum in 1861. From the minimum of 1866 there was a second rise of 46 per cent. to a maximum in 1870; and then occurred a rise of 83 per cent. from the minimum of 1873 to the maximum of 1875. After this came a steadier and slower rise of 90 per cent. from the minimum of 1878 to the maximum of 1885, the next minimum not being reached until 1890. The curve of admissions to the Christianian hospitals tells the same story as the total case curve, except that the maximum of the hospital cases occurred three years later in the epidemic than the maximum of total cases. The death-rate curve for the whole of Norway, based on 1580 deaths in the twenty-nine years 1863–91, is consistent with the corresponding case-rate curve, which is based on 67,909 cases of rheumatic fever in the same period. A comparison of the rheumatic fever case-rate of Norway with that of its capital brings out several important points. The maximum of the first epidemic is reached in Norway in 1866 instead of in 1864 in Christiania, of the second epidemic in 1871 instead of in 1870, of the third in 1876 instead of in 1875, and of the fourth and greatest epidemic in 1888–89 instead of in 1885. There is a further difference in the shape of the two curves. The Christiania curve is sharp and angular, each epidemic reaching its maximum more rapidly than the epidemics shown in the Norwegian curve. The curve for the whole of Norway runs more gradually and smoothly, corresponding with the scattered nature of the population from whose experience it has been constructed. Another suggestive feature of the two curves, so far as it relates to the most recent and greatest epidemic, cannot fail to attract attention. With epidemics starting in the same year (1883) the curve for Christiania falls to the mean line in 1889 and to its absolute minimum in 1890; while the curve for Norway, although declining in 1891, was still 20 per cent. above the mean line. Does this point to a gradual and slow spread by infection or merely indicate climatic or other differences between the capital and provincial parts of Norway? In Sweden it appears that rheumatic fever is only compulsorily notified among the poor, and unfortunately I have only been able to secure from Dr. Linroth, the health officer of Stockholm, returns for the ten years 1884–93, though he has kindly supplemented these by returns of the total number of cases of acute and chronic rheumatism in the Swedish hospitals since 1861. The notifications among the poor in Stockholm relate to 3116 cases of rheumatic fever in ten years, the return of cases in the communal hospitals to 2519 cases in the ten years 1884–93; while the return of total rheumatism in Swedish hospitals relates to 49,601 cases in the thirty-two years 1861–92. The maximum of 1886 in all these curves corresponds to the maximum in 1885 in Christiania; and if we may judge from the Swedish hospitals' curve for total rheumatism the epidemic reached its end sooner in Sweden than in Norway.

Dr. Carlsen of Copenhagen has supplied me with information as to Denmark. In this country medical practitioners are obliged to report every case of rheumatic fever that occurs in their practice. The curve for the whole of Denmark (not including the Faröe Islands and other dependencies) relates to 104,999 cases in the twenty-four years 1870–93; that for deaths in towns to 928 cases; and those for Copenhagen to 24,654 cases and 429 deaths in the same period. The most peculiar feature about the case-rate for both Copenhagen and Denmark is the small range of variation in amount of rheumatic fever. In Copenhagen the absolute maximum in 1871 only differed by 63 per cent. from the absolute minimum in 1892; while for the whole of Denmark the absolute maximum of 1883 only differed from the absolute minimum in 1892 by 45 per cent. In Christiania the corresponding difference is 117 per cent., and in Stockholm (among the poor) 45 per cent. I am inclined to think that the real facts of the case are best displayed by a conjunction of the death and case curves. On this supposition there was a first epidemic, reaching its maximum in 1871 instead of in 1870, as in Christiania; a second, with a maximum in 1873 instead of 1875 in Christiania; and a third epidemic stretched from 1883 to 1888 as in Christiania.

Dr. Palmberg has furnished returns from Helsingfors, Finland, which deal with 3015 cases of rheumatic fever in the thirteen years 1881–1893 in the general population. The notification of rheumatic fever along with that of bronchitis, pneumonia, pleurisy, and peritonitis, as well as of the common infectious diseases, was made compulsory in Finland in 1880. The curve shows a minimum in 1884, which was an epidemic year in Norway, Sweden, and Denmark. In 1885 an epidemic began at Helsingfors which reached its maximum in 1890, 90 per cent. above the preceding minimum in 1884. The next minimum was in 1892 as in Copenhagen, that of

Christiania being reached in 1890. Before leaving the Scandinavian curves, two further points may be noted. The heights of the death-rate curves and of the case-rate curves appear in nearly every instance to be in an approximately inverse relationship to each other. Thus, although a high case-rate curve always corresponds to a high death-rate curve, the highest death-rate curves correspond to *the lowest of the high* case-rate curves, and the lowest death-rate curves to the *highest of the high* case-rate curves. There is some evidence of the same kind in London, where the death-rate from rheumatism was higher in 1874 than in 1863, though the case-rate was apparently lower. Are the intensity and virulence of the specific contagion of rheumatic fever in inverse relationship to the extent of its distribution? The general upward tendency of the Norwegian case curves will be noted, as contrasted with the fairly stationary character (allowing for epidemic variations) of the curve for Denmark, and with the downward tendency of the case curve for Copenhagen. In Swedish hospitals there appears to be a fairly steady increase. If more complete and perfect notification of cases explains the steady rise in Norway it can hardly be supposed that the same cause has not been operating in Denmark and in Sweden. We may compare with the above the general tendency to decline observable in the English curves and to ascend observable in the Scotch curves. It may be that we have here not merely accidental variations caused by the information from different sources being more or less trustworthy, but rather instances of countries involved in either the ebbing or flowing tide of this disease; for there are numerous indications that in addition to the epidemics at intervals of a few years there are larger epidemic waves which represent a wider and larger variation of the prevalence of the disease.

Leaving the Scandinavian returns we have next to consider others which are less complete, though they furnish valuable indications. For a valuable return from the Naval and Military Hospital of Cronstadt at the head of the Gulf of Finland in Russia, I am indebted to Dr. F. Clemow, to whom Dr. Akinkief, the senior physician of the hospital, has furnished the statistics. The curve shows the actual number of cases of rheumatic fever admitted into the hospital each year—altogether 3853 cases in twenty-nine years. The population of Cronstadt in 1893 was reckoned at 44,000, and it does not appear to have increased during the period embraced in the curve. Civil as well as military patients are admitted to this hospital. Three great epidemics are manifest—viz., in 1866–69, in 1887–88, and in 1893. Through the kindness of M. Bertillon I have received returns from Paris, relating to 3988 deaths from "rhumatismes" in Paris in the twenty-two years 1872–93, and 60,281 cases in all the Paris hospitals in the fourteen years 1879 and 1881–93. The main features of the curves based on these returns are the epidemic of 1874–75–76, which, judging by the deaths, had a maximum of 82 per cent. above the preceding minimum. Then followed an epidemic in 1880–81–82, the maximum of which was 38 per cent. above the preceding minimum in 1878 and 61 per cent. above the next minimum in 1838. The hospital cases also show evidence of the 1881–82 epidemic. The Brussels return relates to 488 deaths in the thirty-one years 1862–92. Up to the end of 1874 "rhumatisme aigu" is alone tabulated, after that "rhumatismes." Allowing for this discrepancy, there is evidence of an epidemic lasting from 1865–72, the maximum being in 1866, and a remission occurring in 1870. After two years' interval came the epidemic of 1875–76–77, a year later than the corresponding epidemic in Paris. A third epidemic had its maximum in 1882, and a fourth in 1888. In Berlin, during the twenty-four years 1869–92, 967 deaths from rheumatic fever were recorded. In 1879 were commenced the most valuable series of weekly returns, in which, *inter alia*, the weekly admissions for rheumatic fever into nine large general hospitals in Berlin are given. From these the hospital case-rate (in terms of total population of Berlin), based on 15,715 cases in fifteen years, has been calculated. The death-rate curve shows that 1879 was an epidemic year; that a second epidemic started in 1873, lasting, with the exception of 1876, until 1878. The death returns indicate small increases of rheumatic fever in 1884–86 and 1889; and the case returns show excessive prevalence of the disease in 1886–89 inclusive and 1884–89. For Munich I have received from Professor Dr. Ziemssen a statement of the cases of rheumatism in the Stadt Krankenhaus since 1867, which enables me to give curves of 8884 cases of rheumatism in the twenty-eight years 1867–94, stated in proportion to total medical cases and to the population of Munich. From Dr. Aub I have obtained a statement of the yearly number of cases of rheumatism in Munich and in the whole of Bavaria for five years. These are supplied by voluntary notification on the part of medical practitioners, carried out under the auspices of a medical society. The hospital curves show that the proportion of rheumatism to total medical admissions has increased. There was a slight excess of rheumatism in 1875–76 as compared with the previous minimum in 1872, but no marked epidemic until 1878–81. After a minimum in 1882 a third epidemic reached its maximum in 1887. This, after a fourth minimum in 1892, was succeeded by an epidemic in 1893, which had not completely subsided in 1894. The curve for all cases in Munich in the five years 1889–93 (7080 in number) confirms this general conclusion, as does also the curve for total cases in Bavaria. The Prague returns supplied by Dr. H. Fabor relate to 4163 cases of rheumatic fever in its public hospitals in the ten years 1884–93. An excess is seen in 1884–85 and again in 1889–90. The returns from Vienna deal with 12,061 cases of rheumatic fever in the Kaiserlich-Königlichen Allgemeinen Krankenhaus, one of the three largest hospitals in Vienna, during the twenty-three years 1869–91, and with 30 493 cases of total rheumatism during the forty-five years 1847–91 in the same institution. The official return deals with 34,268 cases of acute and subacute rheumatism in the three chief hospitals of Vienna in the twenty-nine years 1865–93. From the first of these three curves it is not difficult to state the epidemic years for rheumatic fever in Vienna. First, there was an epidemic in 1850–51; next in 1855–56–57 (cf. a similar excess of rheumatism deaths in England in 1855–56); in 1859 a third epidemic occurred, as also in England; in 1868–69 a fourth epidemic, also seen in the English curves; and similarly in 1874–75–76, in 1882, and in 1887–88–89. The curve for rheumatic fever in the same hospital is, so far as it goes, completely confirmatory of the above; so, also, is the rheumatic curve for the three chief hospitals, except that it appears to show a steady increase from 1882–85, instead of two separate years of excess, 1882 and 1885.

The available returns from hospitals in the American continent may be next briefly passed in review. From Montreal I have returns from the General Hospital, to which English Canadian patients, and the Hôtel Dieu of St. Joseph, to which French Canadian patients are chiefly admitted. The curves show an epidemic lasting from 1870–76, but the remission occurring in 1874 in the experience of the Hôtel Dieu was the maximum in the experience of the General Hospital. In 1878 there was a great increase at the General Hospital which was almost entirely absent at the Hôtel Dieu. The next maximum is in 1883 at the Hôtel Dieu and in 1884 at the General Hospital. The fact that 1888 was a year of minimal rheumatic fever will be noted. From the Pennsylvania Hospital, Philadelphia, is a record of 2572 cases of total rheumatism in the twenty-nine years 1865–93, and of 1220 cases of rheumatic fever in the eighteen years 1876–93. The curve for total rheumatism shows maxima in 1870, in 1875–76–77, in 1884–87, and in 1890. The Bellevue Hospital, New York, furnishes 3370 cases of acute and subacute rheumatism and 6208 of total rheumatism in the seventeen years 1877–93. After a high point in 1877 come five exceptionally low years, the minimum being in 1880 as in Philadelphia. A rise occurred in 1883, which was maintained, with an intermission in 1886, until 1889. The rise in 1893 was almost unshared by Philadelphia. The Massachusetts General Hospital, Boston, had 1780 cases of total rheumatism in the twenty-four years 1870–93. The first maximum was reached in 1871 instead of in 1870 as in Philadelphia. After a remission in 1874 as in Philadelphia the rise was maintained until 1876, and was quickly followed by a second rise in 1879–80–81, only shown in 1879 in Philadelphia. The 1887 rise in Philadelphia occurred in 1888 in Boston.

I have now exhausted the available materials as to the epidemiology of rheumatic fever. In completing our survey of the field it is a pleasant duty to express my deep obligation to numerous physicians, hygienists, and resident medical officers of hospitals both in this country and abroad who have undertaken ofttimes most laborious work in securing for me the returns which I have now submitted to your attention. It is obviously impossible at the present time to enumerate those who have helped, but my sense of indebtedness is by no means diminished by the fact that the materials in many cases are necessarily fragmentary and imperfect. Before the natural history of rheumatic fever can be written in full a complete and accurate notification and tabulation of cases for

a long series of years on the system already adopted in Norway, Denmark, and Finland will be necessary. With our present imperfect information my attempt to describe the natural history of rheumatic fever is not unlike that of the palæontologist who from a few fragments of bones attempts to build up the skeleton of an ichthyosaurus. The data already given, however, enable us safely to reach certain general conclusions. 1. All the hospital records, all the Scandinavian Imperial returns of cases, and all the death returns agree in manifesting very great irregularities in the yearly incidence of rheumatic fever, the excesses of prevalence in certain years being so great as to merit the name of "epidemic." 2. A general survey of the curves indicates that there are two kinds of epidemics, which may be designated "explosive" in one case and "protracted" in the other. The explosive epidemics terminate in one or at the most three years. The protracted epidemics are seen chiefly in large centres of population or when we are studying the statistics of an entire country. It is not unlikely that these represent in reality the fusion of two or more of the explosive epidemics, which do not exactly coincide with each other in point of time. 3. There are certain favourite years for epidemics. Thus in England these are 1855–56, 1859, 1864–65, 1868–71, 1874–76, 1884–85, 1888, and 1893. In other countries the same years are frequently characterised by epidemics, but it will have been noted that in some instances there is an anticipation of or lagging behind the favourite years for England. 4. While there is no regular periodicity in the epidemic years, epidemics are apt to recur at intervals of three, four, or six years. At the same time it will have been noticed that there is in many instances a regular alternation between the explosive and the protracted epidemics, two of the shorter and smaller epidemics commonly occurring before the return of an epidemic of the protracted variety. This rule is not universal, so far as can be judged from the available data.

The great variations seen to exist in the yearly prevalence of rheumatic fever will be differently explained according as it is assumed that rheumatic fever is a constitutional disease or a specific febrile disease. If the former, variations of climate and weather, or possible variations in the susceptibility of entire populations to the disease, will be invoked in explanation. If the latter, while variations of climate or weather, or even of individual or collective susceptibility, may be admitted as secondary favouring factors, the chief explanation will be based on the presence of a greater or less amount of the specific *materies morbi*. Supporters of the former view would doubtless quote bronchitis, which causes a very variable annual mortality according to the character of the year's weather. This involves the possibly fallacious assumption that bronchitis is not a specific febrile disease, however much it may be affected by weather influences. It will be well, however, before considering the evidence of analogy, therapeutics, and bacteriology in favour of the view that rheumatic fever is a specific febrile disease, to consider the influence of climate, weather, season, and ground water on the disease.

CLIMATE AND GEOGRAPHY.

Climate may greatly affect the prevalence of rheumatic fever without affecting the question as to whether it possesses infective power. Yellow fever, although a specific febrile disease, is perhaps more directly controlled by climate than any other disease, as it can only prevail during hot and moist seasons, and is arrested by a heavy rainfall, or cold winds, or frost or snow. Rheumatic fever is probably a ubiquitous disease. So much can be said. But when we come to measure its relative amount in different countries or in different districts of the same country we are at once beset with difficulties. Deaths from rheumatic fever, even when separately tabulated, do not enable us in the present imperfect condition of death certification to form definite conclusions even in this country; and in other countries even less so. It is only in those countries in which cases of rheumatic fever are compulsorily notified by the medical men in attendance that we can obtain a fairly accurate knowledge of the total amount of this disease. In Norway in the twenty-nine years 1863–91 the annual sickness-rate from rheumatic fever was 1270 per 1,000,000 persons living, the maximum being 1866 per 1,000,000 in 1883 and the minimum 579 per 1,000,000 in 1863. The completeness of notification has doubtless improved with the lapse of time. In Denmark, where also there is universal notification, in the twenty-four years 1870–93 the sickness-rate was 2183 per 1,000,000 persons, varying from a minimum of 1600 per 1,000,000 in 1892 to a maximum of 2600 in 1883. It will be observed that the minimum of Denmark is almost as high as the maximum of Norway. In Copenhagen the sickness-rate averaged in the same period 4030 per 1,000,000, varying from 2720 in 1892 to 5280 in 1871. It was also high in 1883 (5040) and in 1880 (5140). These rates show a still higher amount than in the whole of Denmark. In Christiania the average sickness-rate for the thirty-three years 1861–93 was 2590 per 1,000,000, varying from 1380 in 1866 to 4000 in 1885. In both Christiania and Copenhagen the notified sickness from rheumatic fever was in excess of that notified in the whole of Norway and Denmark respectively; but it is impossible to state definitely whether this is owing solely to more complete notification in these towns, or in part at least to a greater incidence of the disease on urban communities, of which there are a few indications in England. In Helsingfors there has been compulsory notification of rheumatic fever since 1880, and in the thirteen years 1881–93 the sickness-rate was 4500 per 1,000,000, varying from 2300 in 1884 to 6700 in 1890, an even higher sickness-rate than in Denmark.

Place or country.	Years of observation.	Average case-rate per million.	Minimum case-rate per million.	Maximum case-rate per million.
Norway	29 years 1863–91	1270	579	1856
Christiania ...	33 years 1861–93	2590	1380	4000
Denmark ...	24 years 1870–93	2183	1600	2600
Copenhagen	do.	4030	2720	5280
Helsingfors ...	13 years 1881–93	4500	2300	6700

Death returns for recent years, though not so trustworthy as sickness returns, may afford some indication of relative prevalence. In Berlin from 1869–92 the deaths from rheumatic fever are separately stated. They give an average death-rate of 35·2 per 1,000,000 persons living, varying from 25 per 1,000,000 in 1876 to 55 per 1,000,000 in 1869. In Vienna they are similarly separated in the years 1867–93, and the death-rate for the whole period averages 27·4, ranging from 8·56 in 1867 and 9·90 in 1889 to 37·20 in 1882 and 40·60 in 1870 and 47·3 in 1877. The average rate appears to be smaller in Vienna than in Berlin. In London during the twelve years 1882–93 the death-rate from "rheumatic fever and rheumatism of the heart" was 99 per 1,000,000, varying from 80 in 1889 to 120 per 1,000,000 in 1893. This is much higher than in Vienna and Berlin, in part at least owing to the unfortunate inclusion of "rheumatism of the heart" under the same heading. This renders the comparison useless, even if we supposed that the certification of deaths was equally accurate in the three capitals. In Paris and Brussels all forms of rheumatism are now tabulated together. In Paris in the twenty-two years 1872–93 the death-rate averaged 83 per 1,000,000, varying from 72 in 1892 and 59 in 1891 to 130 in 1875 and 110 in 1880. In Brussels since 1874 the death-rate from "rhumatismes" has averaged 94 per 1,000,000, varying from 154 in 1875 and 164 in 1877 to 56 in 1881 and 35 in 1885. It is useless to continue the list. From the preceding figures it would be impossible to say with certainty in which of the cities enumerated rheumatic fever is really most prevalent, the data not being sufficiently precise for this purpose. It may be interesting, however, before leaving these death returns to compare the above with the corresponding death-rates for the capitals in which cases of rheumatic fever are compulsorily notified. In Norway the death-rate from rheumatic fever averaged 29·5 per 1,000,000 in the twenty-nine years 1863–91, varying from 45·4 in 1876 and 47·0 in 1874 to 19·1 in 1868 and 13·7 in 1864 (possibly imperfect certification). In Christiania the average death-rate in 1861–93 was 54 per 1,000,000, varying from 10 in 1891 to 170 in 1874 and 180 in 1876. In Stockholm the death-rate from rheumatic fever in the ten years 1884–93 varied from 51·5 per 1,000,000 in 1886 to 4·1 in 1893. In Copenhagen in the twenty-four years 1870–93 the death-rate averaged 70·1 per 1,000,000, varying from 87·9 in 1884 and 84·6 in 1876 and 153 in 1871 to 31·7 in 1890. In the whole of Denmark the death-rate in 1870–93 averaged 64·9 per 1,000,000, varying from 30·1 in 1888 to 94·5 in 1875. One fallacy running through these statistics, if comparisons are made, must be noted. Rheumatic fever varies greatly in prevalence and in mortality at different periods. An average death-rate for a number of

years is only comparable with another average death-rate if both populations concerned have had a common experience as regards epidemics, a condition which is difficult to fulfil. Hence the extremes in the preceding statement are of greater importance than the averages.

Indications as to number of cases of rheumatic fever in England.—A rough estimate as to the average annual number of cases of rheumatic fever in London may be made from the preceding data and the notificationdata for Christiania. We may assume that about half the mortality from "rheumatic fever and rheumatism of the heart" is due to rheumatic fever, so as to bring the English figures into comparison with the Norwegian. Probably this is too generous an allowance, though even then the average death-rate from rheumatic fever is 50 per 1,000,000 as compared with about 37 for Christiania. In the thirty-three years 1861–93 the average rheumatic fever case-rate was 2590 per 1,000,000. Assuming that a similar case-rate held good in the twelve years 1882–93, and that the case mortality in London was identical with that of Christiania, it follows that the average annual case-rate in London was 3500 per 1,000,000, or 3·5 per 1000. This is almost certainly an under-estimate. At least 4 persons in every 1000 are on the average attacked annually by rheumatic fever. If to this we add the number of cases of cardiac disease which were rheumatic in origin, although the articular inflammation was inconspicuous, it is evident that we have to deal with the chief cause of English mortality. Taking the case-rates as they stand, it appears that among American hospitals Chicago had much more rheumatic fever in 1886–90 than the eastern hospitals showed over a longer period. At Montreal the proportion of rheumatic fever admitted into the French Canadian was larger than into the English hospital, but whether this is a true race difference or ascribable to differences of administration is doubtful. In both of the Montreal hospitals the proportion of admissions from rheumatic fever does not amount to more than half the same ratio in the States' hospitals. Among foreign hospitals it is only possible to contrast Prague and Vienna, the proportion of rheumatic fever admissions being much larger in the latter than in the former. The Irish hospitals of Wexford and Belfast show a fairly uniform proportion of admissions in the south-eastern and north-eastern parts of Ireland. It would appear from the Scotch returns that there is more rheumatic fever in Aberdeen judged by hospital incidence, than in Kilmarnock, more in Kilmarnock than in Glasgow, more in Glasgow than in Paisley (only a few years' records for the latter), and more in Paisley than in Edinburgh (here again only a few years' records). In the London hospitals rheumatic fever forms 8·43 per cent. of the total medical admissions (1865–93), varying from 6·41 per cent. at University College Hospital (1872–90) and 6·91 per cent. at the Westminster Hospital (1870–78 80–93) to 10·7 per cent. at the Middlesex Hospital (1867–93). In the southern districts of England the admissions from rheumatic fever vary from 7·02 per cent. in Brighton to 10·1 per cent. in Chatham; in the midlands from 3·94 per cent. from acute rheumatism only in a short period, to 10·8 per cent. in Derby and 10·4 per cent. in Leicester from acute and subacute rheumatism; in the western counties from 12·5 per cent. in Reading and 9·71 per cent. in Queen's Hospital, Birmingham, to 5·47 per cent. in Oxford and 5·82 in Cardiff; in the north-eastern counties from 2·06 per cent. at Stoke-on-Trent and 4 per cent. at Liverpool to 5·69 at Manchester and 10·7 at Stockport; in Yorkshire from 2·12 per cent. in Huddersfield and 2·15 per cent. in York to 9·19 per cent. in Leeds; and in Northumberland from 2·83 in Newcastle to 11·6 in Durham. Now, do these differences express real differences, or is the varying proportion of rheumatic fever to total medical patients due to varying systems of hospital administration? There can be no doubt that the latter cause of variation is largely in operation, and that much of the difference shown by the previous rates must be ignored. Hospitals where no medical school exists, and more particularly hospitals in smaller towns, are apt to be used largely by the surgical staff almost to the exclusion of the medical element. The percentages of all except the largest hospitals must therefore be accepted with great caution. Furthermore, it is evident that the social conditions of towns vary enormously, and consequently any statement of rheumatic fever hospital patients in terms of total population would not be a fair criterion of the amount of this disease in two such towns, for instance, as Brighton and Leeds. The ratio between rheumatic fever hospital patients and total medical patients is much more justifiable. It is probable that in a hospital admitting all urgent cases the percentage of rheumatic fever cases to total medical cases would fairly compare the poor of one town with the poor of another, even though in the former the poor who seek admission to hospital might form only one-thousandth part of the total population, and in the latter one-hundredth.

Having admitted to the full the scope of action of accidental and extrinsic causes of variation, there still remain certain differences of incidence of rheumatic fever which cannot be thus explained. It can scarcely be due solely to differences of administration that in Edinburgh in 1889–94 rheumatic fever formed only 2·09 per cent., in Glasgow in 1870–93 only 4·35 per cent., and in Aberdeen in 1865–93 7·21 per cent., while in London in 1865–93 it was 8·43 per cent. of total medical admissions to hospitals. At Queen's Hospital, Birmingham, the case-rate (1876–93) was 9·71 per cent., which is even higher than in the metropoliton hospitals, in Reading it was 12·5 per cent., in Bristol it was only a little lower than in London, in Manchester down to 5·69 per cent. (1870–93), in Liverpool only about 4 per cent., in Sheffield 7·08 per cent. (1887–93), and in Leeds 9·19 per cent. (1880–93). I must again draw attention to the fact that, not being able to compare exactly the same years, or, even when the same years are taken, not being certain that each town had the same range of epidemic prevalence during the period, the above results are open to criticism. Hitherto our statements as to the geographical distribution of rheumatic fever are admittedly defective. The disease is ubiquitous, but it is difficult to express numerically the varying degree of its prevalence in different districts compared with each other.

The Army figures for the United Kingdom show an excess in England over Ireland, and a still greater excess over Scotland, as in the hospital returns previously considered. In the Mediterranean Gibraltar is most subject to rheumatism, Cyprus least so. The amount among the black troops in the West Indies, and still more in West Africa, is terribly high, the sickness among blacks in the West Indies exceeding that among white troops. South Africa has a high case-rate, while in Canada the amount is about equal to that in Ireland and Gibraltar. The amount in China is low, in the Straits Settlements least of all, in Egypt it is moderately high, in Madras and Bengal high, and in Bombay about equal to Egypt. In different parts of India there are striking variations in the different military districts, which would deserve much more careful study were the data for this study extant. In the Bengal district the admissions for rheumatism per 1000 of strength vary from 48·4 in Quetta to 21·4 in Allahabad, in the Madras district from 56·3 in Rangoon to 16·1 in the southern district, and in the Bombay military district from 66·7 in Nagpur to 15·8 in Sind.

Before leaving the question of geographical distribution of rheumatic fever I may give the results of a laborious attempt to state it accurately for the counties of England and Wales. The deaths from "rheumatic fever and rheumatism of the heart" are given separately for each county by the Registrar-General for the ten years 1881–90. The mean population of the same period having been ascertained for each county, it was possible to calculate the corresponding death-rate from rheumatic fever and rheumatism of the heart. The death-rate from rheumatic fever and rheumatism of the heart at each group of ages (0–5, 5–10, 10–15, 15–20, 20–25, 25–35, &c.) in England and Wales as a whole in the same period having been separately obtained, it was possible to apply these death-rates to the population of each county at the various groups of ages, and thus ascertain the number of deaths that would have occurred in each county from rheumatic fever and rheumatism of the heart, assuming that the deaths occurred in each county at the same rate as in England and Wales as a whole. The proportion between this total and the *actual* deaths in each county from rheumatic fever forms a factor of correction for age distribution. Subsequently, the death-rate for England and Wales being taken as 100, each county was stated in proportion to this. Berkshire has the lowest death-rate of all the counties; Lancashire the highest. Lincoln is very low, which does not support the view that rheumatism has taken the place of malaria in the death returns, or that there is a close etiological relationship between malaria and rheumatic fever. London is near the average (109), Cornwall is not much below the average (93), which does not support the statement that, like the Isle of Wight and Guernsey, Cornwall enjoys immunity from rheumatic fever, as stated by Hirsch

on the authority of Forbes.[14] For the rest the order of the counties is very puzzling, and it is doubtful if it represents the true order of rheumatic fever prevalence. One thing is certain—there is abundant rheumatic fever in all of them. The extreme difference is between 71 and 123, England being taken as 100. Most of the eastern counties appear to be lower than the western, but some of the western counties are also below the average. The figures, I think, bear one conclusion. Rheumatic fever is *an urban disease more than a rural*. The counties containing the largest and most numerous towns have with one exception the highest rheumatic fever death-rate. Thus Lancashire occupies the highest position (123); the West Riding (114) is much higher than the East Riding (85). Hereford does not agree with this result, and Cumberland decidedly not. Apart from the statements already made, the results as to county incidence of rheumatic fever are not very trustworthy. It will be impossible to speak very precisely as to the relative amount of rheumatic fever in different counties until there is a general notification of all such cases. Until that time arrives it will be impossible also to solve the problems as to the possible influence of character of soil. An attempt to classify the counties according to relative porosity of their soils was inconclusive, and a more exact attempt of the same kind for the statistics of West Sussex produced contradictory results. Climate may be described as the composite result of the interaction of temperature, rainfall, and soil. Before discussing the influence of each of these chief factors it will be convenient to discuss—

THE INFLUENCE OF SEASON.

Here we are on much firmer ground, as there is abundant evidence of the seasonal incidence of rheumatic fever. The most complete information on this point is from the countries in which rheumatic fever is compulsorily notified. The monthly curve based on 8577 cases in Christiania in the thirty-three years 1861–93 shows that the minimum number of cases occur in August, after a gradual decline to this point; and that from August onwards there is a more rapid rise, the average line for the whole year being passed in November, and 26 per cent. above this line being reached in December and 55 per cent. in January, the maximum month. The difference between January and August is 104 per cent. For the whole of Norway the seasonal curve is similar, though a little retarded, the minimum not being reached until September, and the amount in December not being much above the average for the year. The cases at Stockholm (3116 in the ten years 1884–93) also show a minimum in August and a maximum in January; but the difference between the January and August curve is only 64 per cent., as against 104 per cent. in Christiania. Further, the fall from January to August is broken in March and April, and the November rise is higher than in December. The last may possibly be owing to inaccurate data. At Helsingfors (based on 3030 cases in thirteen years) the minimum is in July instead of August. The winter rise is small, the three maximum months being March, April, and May. The difference between the maximum and minimum is 60 per cent.

Adding together the experience of the fifteen years, 1879–93, in Berlin it is evident that there is much more rheumatic fever in the first than in the second half of the year. In this respect the Berlin agree with the Scandinavian curves. They differ, however, in the fact that the amount of the rheumatic fever in Berlin remains above the mean line until midsummer, while in Stockholm and Helsingfors May is the last month much above this line, and in Christiania May already shows evidence of the summer fall. The rise in November and December is not so marked in Berlin as in Stockholm and Christiania. The slight fall in the last lunar month may be ascribable to fewer admissions to hospital about Christmas time. At Munich 2589 cases of rheumatic fever admitted to the Stadt-Krankenhaus in the six years 1889–94 show that March and May were the maximum months as in Helsingfors; but the minimum was in September instead of July as in Helsingfors, or August as in Christiania and Stockholm. Two additional curves, one based on the total cases of rheumatic fever voluntarily notified in Munich (7078 in the five years 1889–93) and in Bavaria (31,028 in the four years 1890–93), are like the hospital curve, only smoother and showing a maximum in April. Edlefsen's statistics for Kiel show out of 800 cases in 1861–84 a maximum in January, December next approaching it, also minima in August and in February. Dr. August Stoll[15] gives a maximum of 12·6 per cent. in April and 12·4 per cent. in May, next coming March with 10·9 per cent., February 10·8 per cent., June 9·5 per cent., January 8·1 per cent., July 7·7 per cent., December 6·7 per cent., August 5·9 per cent., October 5·7 per cent., November 5·29 per cent., and September 4·07 per cent. The total number of cases was 491. In Philadelphia, on the basis of 673 attacks in the years 1879–90, Dr. M. J. Lewis[16] states that the maximum of 16·5 per cent. was in April, falling to a minimum of 5·1 per cent. in September. In London, judging by the weekly death-returns for the eleven years 1883–93 (4482 in number), which have been arranged in four-weekly periods, the maxima were in the eleventh, twelfth, thirteenth, and first and second periods, and the minimum in the seventh period. It does not follow that this represents the true proportion of seasonal prevalence, as there is evidence that the case-mortality and the character of complications vary in different seasons. It will be well, therefore, to take such evidence as to hospital admissions as can be obtained. Dr. H. S. Gabbett[17] gives the monthly admissions to the London Hospital for the nine years 1873–81, based on 2000 total cases, or 738 first attacks of rheumatic fever. These curves both show a maximum in November. They also appear to show traces of a second maximum in July. From the Middlesex Hospital reports I find that there were 801 admissions for rheumatic fever in the six years 1874–79. These show a maximum in November and December, and a minimum in July. The Westminster Hospital returns for the thirteen years 1880–92 show that of 1116 admissions for rheumatic fever the highest number occurred in the first quarter of the year. I have extracted from the case-books the returns for Guy's and St. George's Hospitals for 1874–75 and 1892–94. The former, based on 594 cases, show that the maximum 129 occurred in the tenth four-weekly period, ending Oct. 8th, and in the twelfth, ending Dec. 3rd, the eleventh and thirteenth periods coming next to this. The minimum was in the eighth period. The first and second periods had ratios of only 96 and 98 (mean =100). It is possible that in this curve we have to deal with the complicating effect of the London epidemic of 1874–75, which may have disturbed the regular seasonal incidence The curves for Guy's Hospital in 1892–94 show, however, the same excess of rheumatic fever in the autumn; and this is confirmed by the London Hospital returns already quoted and by the curve of death-rate. The Berlin and Munich curves of monthly cases show the modifications to which the seasonal prevalence of rheumatic fever is prone.

[14] Hirsch's Geographical and Historical Pathology; Translations of the Sydenham Society, vol. iii., p. 756, and Transactions of the Provincial Medical Association, 1836, vol. iv., p. 274.

[15] Deutsches Archiv für Klinische Medicin, 1893, p. 51.

[16] International Journal of the Medical Sciences, September, 1892.

[17] THE LANCET, Oct. 20th, 1883.

Three Lectures
ON
TRAUMATIC INFECTION,

Delivered at the Royal College of Surgeons of England on Feb. 25th and 27th, and March 1st, 1895,

BY C. B. LOCKWOOD, F.R.C.S. ENG.,

PROFESSOR IN SURGERY AND PATHOLOGY, ROYAL COLLEGE OF SURGEONS; ASSISTANT SURGEON TO ST. BARTHOLOMEW'S HOSPITAL; SURGEON TO THE GREAT NORTHERN CENTRAL HOSPITAL.

LECTURE II.

Delivered Feb. 27th.

SOME INFECTIONS OF THE BLOOD; SEPTICÆMIAS.

Definitions.—Septicæmia and Sarcosepsis.—Method of Investigation.—Bacillary Septicæmia with Sarcosepsis.—Cancerous Ulcers a Source of Infection.—Bacterial Invasion of the Heart in Septicæmia; Illustrative Cases.—The Distribution of Bacteria in Septicæmia.—The Varieties of Septicæmia: Streptococcus Septicæmia.

DEFINITIONS.

GENTLEMEN,—In its strictest acceptation the term "septicæmia" should, I think, apply to conditions in which bacteria flourish in the blood without passing through the walls of the vessels into the tissues. At the same time the bacteria may be present, and even multiplying, at the original seat of

inoculation. Koch's[1] mouse septicæmia is a disease of this type. In it the bacillus multiplies at the point of inoculation and invades the blood, but is not given up by the blood to the tissues. Whilst the animal is alive, and after it is dead, the bacilli are found in its blood, and also in various bloodvessels throughout the body. Hitherto it has been difficult to demonstrate the occurrence of pure septicæmia of this type in man.

SEPTICÆMIA AND SARCOSEPSIS.

There ought, theoretically, to be a converse condition to septicæmia—one in which the bacteria flourish in the tissues, but refuse to enter the blood. Malignant œdema, or, as English surgeons more often call it, diffuse spreading traumatic gangrene, seems to be such a disease. It is well known that in it the bacillus septicus spreads along the lymph paths and shuns the blood. This peculiarity is perhaps explained by the profound aversion which the bacillus has for oxygen. After death the bacillus septicus may spread into the blood, which has then presumably lost its oxygen. Thus we may have a true sepsis of the blood or septicæmia, and a true sepsis of the tissues or sarcosepsis. Most often, however, these two are combined.

The study of the human septicæmia is surrounded by many difficulties. Everyone has seen in histological sections of organs the blood coagulated in the larger vessels, and when this work was begun I thought it might be possible to see bacteria in this coagulated blood in cases of septicæmia. However, I have been most unsuccessful in finding bacteria in the blood of these so-called natural injections, and it seems clear that as yet nothing can be hoped for from this source. This absence of bacteria from the blood of the larger arteries and veins of men and animals who have died from septicæmia is rather mysterious, but even in such a marked septicæmia as anthrax the bacilli are not at all easily seen in the blood of the larger vessels.[2] Perhaps streptococci ought to be excepted from this assertion. Cornil and Babes[3] found streptococci in these natural injections, and I shall allude to a case of streptococcus poisoning in which cocci and diplococci were seen in the blood and also in the smaller hepatic veins. I have, however, more than once found bacilli in the blood-clot in vessels not far from septic wounds in cases of septicæmia. (*Vide* Fig. 13.) Here, however, the mycosis may have been local and not general.

It is by no means easy to demonstrate any kind of bacterial invasion of the blood in human beings. To begin with, it is not always right or expedient to obtain specimens of blood during life or to obtain them from favourable sources. I myself have always failed to see anything definite in blood obtained by puncturing the fingers of septicæmic patients. Culture experiments with blood obtained in like manner may also be fallacious, because, to mention only one objection, of the impossibility of always disinfecting the skin. There still remain, however, the tissues and organs for examination, and they afford, I hope to show, signs as unmistakable as in mouse septicæmia or anthrax.

Great difficulties have been experienced in discovering any bacteria whatever in septicæmic tissues. Experimental pathologists are quite familiar with the occurrence of bacterial emboli in the capillaries of animals after the intravenous injection of pyogenic cocci or of other bacteria. Also, since the investigations of Recklinghausen, Klebs, Hueter, and of many others, bacterial emboli have been repeatedly described and figured in the organs of men and animals who died from pyæmia,[4] and I could adduce many examples of my own; but hitherto the occurrence of similar emboli in septicæmia hominis has hardly been recognised, although the need of objective evidence of the kind has been severely felt. Indeed, in its absence there can be no doubt whatever that many cases of septicæmia have been thought to have been toxæmias, septic intoxications, or sapræmias. The importance of being able to determine the true cause of death in septicæmia and toxæmia by the examination of the tissues hardly requires to be mentioned. Writing in 1890, Baumgarten[5] said that, although bacteria have been found during life by Ogston and Rosenbach in the blood of those suffering from septicæmia, nevertheless direct evidence of their presence in the internal organs was wanting. He himself made the attempt to demonstrate their presence, but failed to do so. Cohnheim,[6] who has done so much to elucidate embolism, says nothing concerning bacterial emboli in the capillaries in septicæmia hominis. Von Eiselsberg[7] and many others have both before and after death demonstrated bacteria in the blood in a variety of septic conditions by using culture media. This method, however, is not always possible, and is apt to be fallacious. Von Eiselsberg and the authorities whom he quotes do not seem to have seen bacteria in the bloodvessels or capillaries after death. In one of our most recent and best works upon pathology[8] the author, speaking of septicæmia, says: "We are peculiarly ignorant of what the organisms are which grow in the blood of man as a result of putrefaction." But in pathological literature are to be found brief references to the occurrence of bacterial emboli in the capillaries of those who have died from septicæmia. Dr. Klein[9] says that in several cases of human septicæmia he found large numbers of minute bacilli in the bloodvessels of the lymphatic glands, and he figures such a vessel distended with bacilli. Cornil and Babes[10] say that Ziemacki examined a larger number of those who had died from septicæmia, and always found zooglia of micrococci in the organs. These micrococci or zooglia were always the same, and were more numerous in acute than in chronic septicæmia. The micrococci were never found in non-infectious maladies. Klebs[11] has also described and depicted proliferation of micrococci in the pulmonary capillaries in puerperal septicæmia, following septic thrombosis of the internal spermatic vein. Leber and Wagenmann[12] have described an invasion of the vascular system by streptococci, but their attention is chiefly devoted to a local invasion at the point of inoculation, and they say little concerning the internal organs. I propose to refer to their observations when describing emboli in the capillaries of the liver in streptococcæmia. Cornil and Babes in their work on Bacteria depict the capillaries of the lung of an infant, the minutest vessels of which were filled with bacilli which resembled those of rabbit septicæmia. These authors also describe and depict bacteria and cocci in the capillaries of the skin of a child which died from septicæmia. Doubtless other references are to be found, but enough has been said to show that little is known concerning the occurrence of capillary bacterial emboli in septicæmia hominis.

BACILLARY SEPTICÆMIA WITH SARCOSEPSIS.

I long thought the following was a case of septicæmia such as came within my definition of that disease; but after many searches bacteria were at length discovered in the pneumonic exudation. Whether these were merely cadaveric or whether they were pathogenic I do not know. So little, however, seems to be known about septic pneumonias that it is better to describe what was found rather than to assume something which may be false. I shall, however, presently describe cases of septicæmia in which there seems to have been a true infection of the blood, such as occurs in mouse septicæmia. The case I am about to describe has a melancholy interest for me, as it is the only one of its kind I have ever had.

CASE 8 (Figs. 10 and 11).—A woman aged sixty-two years had a rapidly growing and ulcerated carcinoma of the breast, with involvement of the axillary lymphatic glands. Although the tumour had only grown for four months it was of large size, and the skin over it was cancerous in an area five inches long and three broad. In the centre of this area, in the region of the nipple, the skin had ulcerated and the cancer

[1] Traumatic Infective Diseases, Translations of the New Sydenham Society, 1880, p. 33 et seq.; also Baumgarten, loc. cit., p. 496.
[2] See also Flügge: Micro-organisms in Disease. Translated by Watson Cheyne. New Sydenham Society, 1890, p. 238.
[3] Les Bactéries, Fig. 206, vol. i., p. 536.
[4] Fraenkel und Pfeiffer: Atlas der Bakterienkunde, Parts XII. and XIII., Fig. 128 et seq. Also Koch: Etiology of the Traumatic Infective Diseases, 1879. Bowlby: Surgical Pathology, 1887, p. 60, Fig. 5. Ziegler's Pathological Anatomy, Part II., 1886, p. 55, Fig. 212, &c.
[5] Lehrbuch der Pathologischen Mykologie, p. 362. Braunschweig, 1890.
[6] Vorlesung über Allgemeine Pathologie. Berlin, 1877.
[7] Beiträge zur Lehre von den Mikro-organismen im Blute, &c. Wiener Medicinische Wochenschrift, 1886, p. 133. Also: Nachweis von Eiterkokken im Blute als Diagnostische Hilfsmittel. Wiener Klinische Wochenschrift, 1890, No. 38, p. 731.
[8] Hamilton: A Text-book of Pathology, vol. ii., Part II., p. 1019. Published 1894.
[9] Micro-organisms and Disease, third edition, 1886, p. 120, Fig. 55.
[10] Les Bactéries, p. 464. Paris, 1890. Ziemacki's original work is entitled "Beiträge zur Kenntniss der Micro-organismen bei Septicæmia." I regret I have been unable to obtain it. A reference is given in the Zeitschrift für Hygiene, 1883, Part II.
[11] Die Allgemeine Pathologie, Part I., pp. 300 and 301, Fig. 50 Jena, 1887.
[12] Infantile Necrose der Bindehaut mit letalem Ausgang durch allgemeine multiple Streptokokken—Invasion des Gefässsystems. Von Graefe: Archiv für Ophthalmologie, 1888, vol. xxxiv., p. 250 et seq. These authors give references to similar observations in children who died from congenital syphilis and other diseases.

was fungating. After consultation with my colleagues I removed the whole of this extensive disease, together with the axillary glands. The wound was brought together with difficulty, a drainage-tube was placed in the axilla, and many pints of sublimate lotion (1 in 2000) were used for irrigating the wound and the axilla. The skin was dusted with iodoform and a dressing applied. After the operation the patient was very restless and delirious and unable to understand what was said. These symptoms began with reaction and became progressively worse. After a while the restlessness and delirium were followed by apathy and stupor, and she died on the seventh day. Her temperature was highest on the last day, when it rose to 102·4° F.; the day before it had been 101°, and it was the same the third day; but with these exceptions it remained somewhere near 99°. The wound was painful from the beginning. About forty hours after the operation a little fluid soaked through the dressings, so they were changed. There was some redness of the skin, but the incision looked well. The drainage-tube was blocked with greyish blood-clot which had a peculiar odour, but not that of putrefaction. No bacteriological examination was made at this time, because the symptoms were thought to be due to iodoform; but the general and local conditions speedily became worse. The wound emitted a fetid odour and was covered with ashen lymph without pus. Therefore, the whole wound was opened and swabbed with tincture of iodine and fomented. The fetor abated, and the wound afterwards underwent no alteration. General infection had, however, obviously supervened from an early stage. The macroscopic appearances were, as usual in septicæmia, far from characteristic, and taken alone would have left the nature of the disease in doubt. There was a large and fetid wound due to the removal eight days previously of a large ulcerated carcinoma of the breast, together with secondarily infected axillary glands. The liver, spleen, and kidneys were normal, and no abscess or thrombus could be found anywhere. Both lungs were engorged with blood.[13] Secondary nodules of carcinoma were met with in the liver, kidneys, and lungs. Portions of these three organs were histologically examined by various methods of staining, together with blood from the heart and fluid from the wound. The microscopic examination of the tissues yielded the following results. Pathologists have always laid great stress upon the condition of the spleen in septicæmia hominis, but its tissues were normal and no bacteria were seen, although several methods of staining were employed. The same applies to the liver. In the lungs, however, numbers of the capillaries were filled with small, non-spore-bearing bacilli with rounded ends, and usually in pairs. (Fig. 10.) At first glance the

FIG. 10.

Bacillary septicæmia. Short bacilli in the capillaries of the lung.

capillaries looked as if they were filled with micrococci, but in many of the emboli separate short bacilli could be discriminated, and occasionally chains of three or four. (All of this work was done with Zeiss $\frac{1}{12}$ in. oil immersion and No. 3 eye-piece.) The bacilli were lodged in the smallest capillaries, oftenest in those which had a diameter equal to one coloured corpuscle, but seldom in those which had a diameter equal to two. Many of the smallest capillaries of the air vesicles were filled with bacteria, but the vasa vasorum of the smaller pulmonary vessels were clearly their favourite seat. They stained rather more purple by Czenzynke's method than some other bacteria which I am about to describe. The lungs themselves were engorged with blood, and many of the air vesicles were full of exudation, with large nucleated and granular cells in its midst. (Fig. 11.) A number

FIG. 11.

Bacillary septicæmia. Exudation into air vesicles in pneumonia complicating septicæmia.

of different kinds of bacteria were growing in this exudation. The most numerous were small, almost round bacteria, which grew in dense swarms, or in pairs, or chains of three or four elements. They were the same as the bacilli in the capillaries; where they grew in swarms within the tissues of the lung their resemblance was exact. The pairs had no capsules. Here and there the bacilli lay within the exudation cells. Like those in the capillaries, they did not stain by Gram's method, but did by Czenzynke's. Along with these small bacilli were others which were long and rather slender, and not unlike tubercle bacilli. I thought, as intermediate grades were present, that they might be the mature stage of the small bacilli. In the exudation were also numbers of big, thick bacilli of variable length. These stained by both Gram's and Czenzynke's methods. The more healthy parts of the lung contained none of these bacteria, except the small kind, which filled some of their capillaries. When pyogenic cocci are introduced into the circulation of animals the vessels of the kidneys are usually the seat of bacterial emboli; in this instance of bacillary septicæmia, however, only a few of the smallest capillaries of the kidney were filled with bacilli. These were situated in the cortex, immediately beneath the capsule, and in the walls of the straight arteries and veins of the medulla. Presently other instances will be given of bacterial emboli in the vasa vasorum of the renal vessels. Doubtless some of the bacteria in the pulmonary exudation may have been cadaveric, but others closely resembled those in the capillaries, and were probably pathogenic. It is not at all easy to think that the bacteria in the capillaries did not get into them during life. I have no hesitation in believing that they were carried there by the blood stream, and that they are evidence of the septicæmia from which the woman was thought to have died. I have examined the organs of those who died from burns, fractures, cellulitis, bronchitis, pneumonia, pleurisy, and other diseases by the same methods, and have never met with similar appearances in the capillaries. Nor have I been able to find them in kidneys or lungs which were beginning to putrefy. Moreover, the presence of bacteria in the capillaries is consistent with the clinical history and with the bacteriological investigation of the wound, heart's blood, and tissues. Bacteria with the same morphological characters as those in the capillaries of the lung were found in the fluids of the

[13] From the notes of Mr. Berry, surgical registrar in St. Bartholomew's Hospital.

wound and in the blood of the auricle. In both, however, they were mixed with other kinds of bacteria, so that a satisfactory investigation was difficult and uncertain. The sanious and fetid fluid from the axilla contained cocci, diplococci, and staphylococci, and staphylococcus pyogenes aureus was separated from it by plate cultures. It also contained quantities of small, oval, sporeless bacilli similar to those in the capillaries of the lungs and kidneys. These also grew in short chains and occasionally looked not unlike diplococci, their ends staining more than the centre. An attempt was made to identify some of the bacteria in the wound. The earlier cultures had the same odour as the fluids of the wound and grew bacteria with similar morphological characters. Mice, rabbits, and pigeons died two or three days after inoculation with cultures from the axillary fluid. Their blood contained small oval bacilli, usually in pairs. This bacillus grew rapidly at 20° C. or 35° C. upon the surface and in the depths of culture media. The growth upon the surface was smooth and white, with abrupt, irregular edges. That in the depths consisted of small delicate white dots. Gelatine was not liquefied. The agar-agar acquired a greenish opalescent tinge. No gas was produced, and odour was absent from the older cultures. Mice died about forty-eight hours after inoculation. This bacillus was also separated from the juice of the spleen and liver. Some of the foregoing characters are like those of a bacterium which Pasteur found in fowl cholera, Gamaleia in septicæmia of birds, and Koch in rabbit septicæmia. The opalescence of agar-agar is, however, a peculiar feature. It has been observed by Babes in cultures of his proteus septicus. The wound contained other kinds of bacilli. Some were straight with rounded ends, and about the size of tubercle bacilli; others, with sharp, indistinct ends, grew in long chains; others were short and plump; whilst others were large and grew in pairs, and looked like kidneys lying with their hilums towards one another. The bacilli with sharp ends I have seen in the pus of acute septic meningitis caused by otitis media. I cannot say to what extent these various forms represent distinct species of bacilli. Malvoz, in his admirable monograph,[14] claims that the colon bacillus is extremely polymorphic. In the same culture he has seen ovoid forms, almost like cocci, a small bacillus with rounded ends, and, last, a long filamentous bacillus. By adding naphthol, alcohol, bichromate of potash, or boric acid to the media in which it is growing the bacillus pyocyaneus assumes the form of bacillus, of long bacillus, of leptothrix, of spirillum, or of spirochæta.[15] From the pus of a case of septico-pyæmia occurring after parturition Karlinski[16] obtained a pleomorphic bacterium closely allied to the proteus varieties of Hauser. It assumed coccus, bacillus, or spirillum characters according to the ways in which it was grown, and was pathogenic for white mice. No details are given of any other examination of the pus, blood, or tissues of the person from whom Karlinski obtained the bacterium.

It is quite a usual circumstance to have several kinds of bacteria in the wound and for only one kind to invade the body. For instance, in the profoundly septic wound of a patient who died after internal urethrotomy I found bacilli and cocci of various kinds. But the pus of a pyæmic abscess only contained streptococci. The bacilli did not seem to have passed beyond the wound. The blood of the auricle in this case of septicæmia also contained numbers of the small oval bacilli, usually in pairs, and many large straight, round-ended bacilli. The latter were, I think, cadaveric. Nevertheless, when some of this blood was inoculated into a rabbit, it died from peritonitis, and similar bacilli were found directly after its death in the lymph.

Although so many bacterial forms were present in this case, yet the septicæmia seems to have been caused by the small oval bacillus. My reasons for thinking so are as follows: (1) a small oval bacillus was found in the capillaries of the lungs and kidneys; (2) the same bacillus was found in the blood of the heart; (3) the same bacillus was found in vast numbers in the fluid of the wound; and (4) it was highly pathogenic for animals. Babes[17] concluded from his systematic work that there were several kinds of septicæmia. In one kind all the organs contained a special non-saprogenous bacterium of a highly pathogenic type; in another the bacilli were less pathogenic and saprogenous; and, lastly, there was septicæmia produced by pus bacteria of exceptional virulence. Babes also adds that most septicæmias are caused by several associated species of bacteria. I endeavoured to find out whence the bacillus had come which had caused this septicæmia. All the usual precautions of aseptic surgery had been used in the operation. Just before the incision the skin of the breast and the ulcerated surface were finally washed with a solution of sublimate, 1 in 1000 parts of water, although it had previously been washed and soaked in the same solution; but on reflection it seemed highly improbable that this was an efficient disinfection, and, therefore, the fatal infection may have come from the ulcer.

About this time I had under my care another patient who had a cancerous ulcer of the breast. The discharges from this had the same odour as those of the previous case. Cultures inoculated from the ulcer had the same odour and killed white mice in forty-eight hours. Their blood contained small ovoid bacilli, usually in pairs. Some were not easily distinguished from diplococci. A small ovoid bacillus was separated from the cultures which killed the mice. It was the same as that grown from the wound and organs of the case of septicæmia which I have just described. The greenish opalescent tinge which the growing bacilli imparted to agar-agar was very striking.

Hitherto, so far as I can tell, no bacillus with pathogenic properties has been found in cancer juice or cancerous ulceration. Scheurlen's[18] so-called "cancer bacillus" was the bacillus epidermidis,[19] and had no resemblance to the small ovoid bacillus which produced an opalescent substance; nor can I find any reference to a pathogenic bacillus[20] in the writings of others.

From what has been said it is clear that the secretion of cancerous ulcers would repay study by a competent bacteriologist. It is not sufficiently recognised that these cancerous ulcers are such a dangerous source of infection. Quite apart from operations, they frequently give rise to sapræmia, septicæmia, or pyæmia. That precautions ought to be taken to avoid infection from cancerous ulcers during operations is obvious. It is less clear what those precautions should be. When last I had to operate upon an ulcerating scirrhus the whole surface of the ulcer was swabbed with pure carbolic acid. This succeeded, and the wound healed by first intention under a single dressing. However, recently one of my colleagues who knew of my experience and experiments had a death from septicæmia after the removal of an ulcerating carcinoma, although pure carbolic acid had been used and every other precaution taken. This case will be described next. Upon another occasion of the same kind I should begin by destroying all the ulcer with an actual cautery.

BACTERIAL INVASION OF THE HEART IN SEPTICÆMIA.

CASE 9.—Another case of septicæmia similar to the last occurred in the same ward a year and five months later. There is the closest similarity in the clinical history, morbid anatomy, and morbid histology of the two cases, and therefore I will mention it next. The patient was a woman fifty-five years of age, who came into the hospital because of a scirrhous cancer of the right breast. The tumour had grown for more than a year and had involved the axillary glands. In its centre the growth had ulcerated over an area as large as a half-crown, and some very foul discharge was secreted by the raw and fungating surface. The operator was acquainted with the history of the previous case, and therefore extra care was taken to disinfect the ulcer and the surrounding skin. The latter was, as usual, washed with soap and water, its sebaceous matter removed with ether, and then it was disinfected with a solution of biniodide of mercury, 1 part in 500 parts of water. Also carbolic gauze soaked in a solution of biniodide of mercury was kept applied to it for many hours. Just before the operation the surface of the ulcer was brushed over with pure carbolic acid, and covered with a layer of alembroth gauze fastened on with collodion. At the operation the breast, pectoral fascia, and the axillary lymphatic glands were removed. The wound, which was very large, was closed with flaps of skin, drained, and dressed in the usual way. Nothing can be said with certainty about this patient's mental state, because she

[14] Le Bacterium Coli Commune comme Agent Habituel des Péritonites d'Origine Intestinale. Archives Expérimentales et d'Anatomie Pathologique, 1891, p. 596.
[15] Macé: Traité Pratique de Bactériologie, p. 512. Paris, 1891.
[16] Centralblatt für Bakteriologie und Parasitenkunde, vol. v., 1889, p. 193.
[17] Cornil et Babes: Les Bactéries, p. 466. Paris, 1890.
[18] Deutsche Medicinische Wochenschrift, 1888, p. 1033.
[19] Kanthack: Brit. Med. Jour., Aug. 2nd, 1891, p. 476.
[20] See also Baumgarten: Lehrbuch der Pathologischen Mykologie, p. 729.

had delusions before the operation; but she became violent directly after the operation and was never afterwards rational. She remained weak, restless, and sleepless, and after some hours of delirium was semi-comatose and collapsed, and died on Oct. 10th, the sixth day after the operation. During the last forty-eight hours it is expressly said that her pulse was extremely feeble, and was only maintained by the continual administration of brandy and of other cardiac stimulants. From having been 80 in the minute the pulse rose to 130 towards the end. The respiration hardly altered, but kept from 24 to 30 per minute. Her temperature was not much raised at first. On the fifth day it reached 102·6° F.; and on the sixth and last it rose to 103° and then to 106·6°, when she died. As a rule it ranged about 100° F. Albumen was found in the urine, but blood corpuscles and bacteria were not sought for. The wound during this illness became red and inflamed, but the edges did not come apart. Blood-stained fluid escaped by the drainage-tube, but this contained no pus, nor had it the odour of putrefaction. It seemed to me to possess a peculiar faint odour. When the flaps were opened to avoid retention of discharges a large raw surface was exposed, from which blood-stained serum exuded. This exudation contained vast numbers of small ovoid bacilli. Their average length was about 1 μ, and their average breadth about 0·75 μ; but some were nearly twice as long. These bacilli multiplied by fission, and were usually in pairs. Occasionally chains of four occurred. Although there were differences in the morphology of these bacteria, nevertheless I am inclined to think they all belonged to one species.

The naked-eye examination did not give much information. The axillary vein was not thrombosed, but some of the veins of the neck were full of gas. The heart was flabby and dilated, and weighed twelve ounces; it was not otherwise diseased. The lungs were œdematous and congested at their bases. The kidneys were greatly congested and studded with small hæmorrhages. The spleen weighed five ounces, and was not diseased. Histologically, the lungs had undergone very slight alteration. Their smaller vessels were distended with blood cells and many acini full of catarrhal cells; but the evidences of bacterial invasion were either absent or not clear enough to be spoken of with certainty. I think it is probable that the small, slightly oblong bacteria had lodged in some of the minuter capillaries of the smaller pulmonary vessels and bronchioles. In the kidneys the vascular engorgement was very marked, and most of the vessels were packed with blood corpuscles, and, as usual, no bacteria could be seen amongst them. A great deal more hæmorrhage was found with the microscope than was apparent to the naked eye. Some of the extravasation was recent, some was older—perhaps a week old—and beginning to undergo the usual alterations. The renal epithelium was cloudy and desquamated in places. Some of the tubules were filled with albuminous exudation. These morbid conditions were accompanied by hardly any bacterial invasion. Occasional bacterial emboli were found in the minute vessels near the capsule and in the vasa vasorum of larger vessels near the hilum. These emboli were widely scattered and most difficult to find. They were composed of small bacteria which were very slightly oblong. The same kind were found in much greater profusion in the heart. (Fig. 12.) To the eye the heart was merely flabby and dilated, and histologically its structure was not much altered. The muscular striations were quite clear. Some of the smaller vessels were dilated and full of blood, with here and there small inter-muscular hæmorrhages. But the evidences of septicæmia were unequivocal. Many capillaries and small vessels were filled with bacteria. These were small and almost round, being about 1 μ long and 0·75 μ wide. They grew in swarms, in pairs, and in short chains. In some places they seemed to have begun to emigrate into the inter-muscular spaces. These small oblong bacteria have the closest morphological resemblance to the bacilli in the vasa vasorum of the vessels of the last case, and I think that they belonged to the same species. It is to be regretted that no histological examination was made of the heart in that instance. The cells of the liver had undergone fatty infiltration, but no bacteria could be found in that organ. The vessels of the brain were dilated, and many of the smaller ones stuffed with blood corpuscles. The cerebral tissues had undergone no obvious alteration, and no bacterial emboli could be found. The relationship betwixt the bacteria and the morbid process was rather unexpected. The chief morbid changes were seen in the kidneys, but nevertheless bacterial emboli were very hard to find in these organs. In the heart, where so many emboli were found, the morbid changes were quite trivial. It seems as though there might have been a relationship betwixt the hæmorrhages and the vascular engorgement of the kidneys, the latter being due to ptomaines or toxines circulating in the blood and not to the direct agency of localised bacteria. This is also the only case in which the brain was searched for bacterial invasion. Although the result was negative it is merely an isolated and imperfect observation. I should expect that bacteria would lodge in the brain in some cases

FIG. 12.

Bacillary septicæmia. Vessels of the heart filled with short bacilli.

of septicæmia, just as they do in the heart, kidneys, liver, lungs, or other organs. The histological examination throws a certain amount of light upon a point in the clinical history. Towards the end of the disease it may be remembered that the pulse beat rapidly and the heart's failure was so marked that cardiac stimulants were given for its relief. The accumulation of bacteria in the cardiac vessels may help to explain these cardiac symptoms.

BACILLI IN THE BLOOD DURING LIFE.

I have reason to think that small short bacilli, such as were found in the foregoing cases, may be seen in the blood of living patients. Mr. Maxwell has given me preparations of blood which certainly contain bacilli with similar morphological characters, and which were made under the following circumstances.

CASE 10.—A man aged twenty-three years was admitted into the medical wards of St. Bartholomew's Hospital in November, 1894, with ulcerative endocarditis and septicæmia. The endocarditis was probably an acute attack which had supervened upon an old disease. Twice before the patient had had rheumatic fever, and once before an attack of chorea. The acute endocarditis was accompanied with aphasia, paralysis of the right side, and double optic neuritis. Although the signs of septicæmia were not of the acutest kind, nevertheless they were very clear. The temperature was raised, and usually ranged betwixt 100° and 103° F. A hæmorrhagic rash appeared upon the buttock. Delirium was almost constant at night, and towards the end he became restless and unconscious. The urine contained a trace of albumen, but was not examined for bacteria. The duration of the septicæmia may have been a little over a month. When the disease was at its height Mr. Maxwell obtained blood from the finger which contained small short bacilli singly, in pairs, and in small swarms. Their size was variable, some being as big as staphylococcus aureus and others thrice the size. They all, however, belonged to the same species, and the large elements were simply those which were in the act of division. The specimen which contained such an abundance of bacteria was obtained after the skin had merely been washed with soap and water; but four days later some blood was obtained after the skin had been scrubbed with soap and water, rubbed with ether, and disinfected with a 5 per cent. carbolic lotion. The blood still contained the same bacteria,

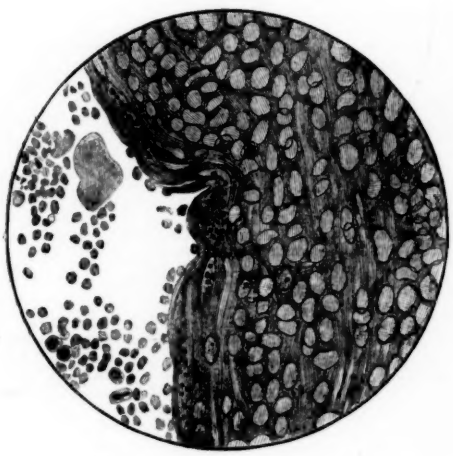
but in much fewer numbers. Attempts to grow these bacteria upon culture media ended in failure.

Experimentalists are quite familiar with the disappearance of bacteria from the blood after massive doses have been injected. Saprophytes disappear the most quickly, and in a few hours none survive; but even pathogenic bacteria soon diminish in numbers, and may entirely vanish.[21] Thus there is nothing surprising in the occurrence of many bacteria upon one day and their diminution upon another. Dr. Kanthack, our pathologist, has of late had no difficulty in finding staphylococcus aureus and streptococcus pyogenes in the blood during life in pyæmia and ulcerative endocarditis. In cases of so-called septicæmia none were found, and these all recovered.

SEPTICÆMIA WITH BACTERIAL INVASION OF THE HEART, PERICARDIUM, AND PLEURA.

CASE 11 (Figs. 13 to 16).—One of the cases of septicæmia (Case 8) which has been described died on May 19th, 1893. It was preceded by another in the same ward which died rather less than a month before, on April 26th, 1893. The two cases resemble one another in some particulars, but differ widely in others. They will be contrasted after I have given the details of this, which was the first to occur. The patient was sixty-five years old and had been a widow for two years. In August, 1890, a small carcinoma was removed from the right breast, together with some enlarged axillary glands. This operation was followed by no recurrence *in loco*, but in April, 1893, the left breast was amputated for the same disease, and the axillary lymphatic glands, being enlarged, were removed. The day after the operation the woman was quite comfortable, without pain, and with a normal temperature. Upon the third day her temperature had risen to 102·2° F., and on the fourth she was very ill with a temperature of 102·3°, an inflamed throat,

FIG. 13.



Bacillary septicæmia. Bacilli in blood-clot in the anterior jugular vein. In some parts of this clot the bacilli grew in leptothrix.

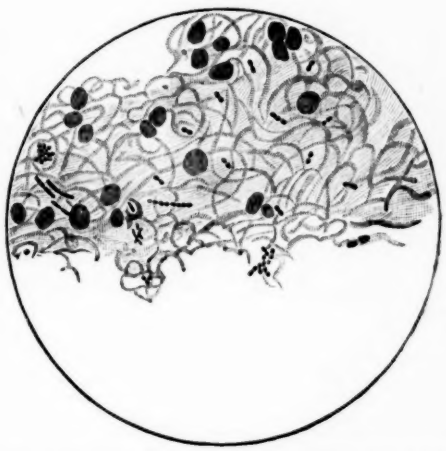
and some redness of the wound, unaccompanied with discharge or suppuration. Upon the fifth day, although she felt better, there was some fulness in the axilla, with tenderness about the shoulder. The mind was quite clear except at night, when she was slightly delirious. The urine was acid, with a specific gravity of 1022, and a cloud of albumen when heated. Upon the seventh day she died with failure of the heart's action; her pulse, which had been at the rate of 118 to 120 per minute, fell to 112 and then to 60. The respiration, too, was rapid, having risen from 27 to 42 during the course of her illness. The temperature, which had averaged 102°, fell to 99·8° on the day she died. There was never any coma, and the mind was clear throughout.

[21] Numerous references are given by Thomas in Neubauer and Vogel's Harnanalyse; also by Wyssokowitsch in the Zeitschrift für Hygiene, 1886,

The examination was made twenty-five hours after death. The operation wound was said to have appeared healthy. The brain and organs were normal, with the exception of those in the thorax. The surface of the pericardium was covered with a thin layer of recent lymph, and contained about an ounce of purulent fluid. The lungs were slightly congested and the pleuræ universally adherent by a thick layer of recent yellow lymph. There was very little fluid in the pleural cavities. Recent thrombi were found in the anterior jugular and in some of the neighbouring veins. As a rule, bacteria are hard to find in blood-clots, but in this instance the firmer and most fibrinous part of the clot from the anterior jugular vein contained numerous groups of short bacilli with rounded ends, and often in twos. (Fig. 13.) In some parts of the clot they grew in leptothrix of some length. This is not seen in the part of the clot which has been drawn. It is shown, however, in Fig. 16. The bacilli were in vast numbers amongst the fibrin, but in places where the blood corpuscles predominated none were seen.

The present seems to be a favourable opportunity for showing a micro-photograph which Mr. Cosens has made of a clot from the femoral vein of another woman who died from septicæmia after an operation for necrosis of the femur. The bacteria in the clot are short bacilli, the same morphologically as those which I have just described. The patient died forty-eight hours after the operation with coma and high temperature. But to return to the case under consideration, the lymph which covered the visceral layer of the pleura was in places a quarter of an inch thick. Mixed with its cells and fibrin were bacilli of more than one morphological variety. By far the most abundant were small oval bacilli 1·5 μ to 2 μ long and 0·75 μ wide, which occurred chiefly in pairs in short chains of from four to eight or ten elements (Fig. 14), and in small irregular groups. Here and

FIG. 14.



Bacillary septicæmia. Pleuritic lymph containing a variety of bacilli

there, especially near the free edge of the lymph, were a few short and thick round-ended bacilli in pairs. It seems probable that this was a bacillus which occurs in dead tissues, and is called by Sternberg the "bacillus cadaveris."[22] I cannot speak so confidently about another bacillus which also was present in considerable numbers. It was about the size of the anthrax bacillus, but with oval ends; it grew in pairs, or in short chains with ill-marked intervals between the elements. The pleura was acutely inflamed with engorgement of its vessels and proliferation of its endothelium. Its tissues were interspersed with bacilli the same as those which have been described. Here, again, the small oval bacilli in pairs and chains were by far the most numerous. These filled many of the smallest bloodvessels and lymph spaces, but were absent from the blood which distended the larger arterioles and venules. Most of the air vesicles beneath the pleura were filled with pneumonic

[22] Manual of Bacteriology, p. 4

exudation, which contained numbers of the small oval bacilli. Bacilli were most numerous near the pleura, but both they and the exudation diminished in the vesicles further removed from the pleura. The tissues of the lungs also contained the two other kinds of bacilli seen in the pleuritic exudation. The pneumonia was the same as that in Fig. 11. No bacterial emboli were found in the capillaries of the pleura. The description of the pleural lymph applies to that which covered the pericardium. It likewise contained numbers of bacilli with similar morphological characters. Slight histological differences were also observed. For instance, the pericardial lymph was thinner and more villous and the subjacent endothelium detached in places as if by vesication. Thus the pericardial and pleural lymph probably contained three kinds of bacilli. The two largest are common in cadavers and may have been saprophytes. The small oval bacillus may also have been of the same nature, but the examination of the tissues of the heart, and, I might add, of the other organs, suggests that it played a much more important part and was the cause of the septicæmia. Many of the capillaries and smaller bloodvessels of the heart were filled with these small oval bacilli. (Fig. 15.) In many places the

FIG. 15.

Bacillary septicæmia. Short bacilli in the bloodvessels of the heart.

dilated inter-muscular lymph spaces were also full of them, and where they were not crowded together the usual chains of from six to ten elements were seen. (Fig. 16.) Here and there the bacterial emboli filled minute bloodvessels beneath endothelial covering of the heart. Some of the muscle fibres also contained the bacteria in their substance, but not enough to distend their sarcolemma as in a case of pyæmic myocarditis described by Cornil and Babes.[23] The kidneys, too, had not escaped. Their epithelium was slightly cloudy, and had desquamated in some of the larger collecting tubules. Some of the smaller tubules contained albuminous casts. The bacterial invasion of the kidneys seemed to have been but slight. With much trouble it was ascertained that some of the smaller capillaries and vasa vasorum of the bloodvessels and connective tissue of the medulla contained bacterial emboli. It is to be noticed that the histological examination throws light upon two features in the clinical history. Apart from the pericarditis the bacterial invasion of the muscular substance of the heart is, I think, sufficient to account for the failure in the action of that organ, which seems to have been the immediate cause of death. Next, the bacterial emboli in the kidneys must have had a relationship to the presence of albumen in the urine. The association of pleuritis and subpleural pneumonia with rapid respiration hardly requires comment.

If we contrast this case of septicæmia with another (Case 8) which occurred in the same ward, the following differences in their clinical symptoms, morbid anatomy, and morbid histology are to be noted. In the first the mental condition was characterised by apathy, stupor, and coma; in the second the mind was clear throughout, with only slight delirium at night. In the first the temperature was low, averaging 99° F.; in the second the temperature was high throughout, usually 102°, and only fell as the patient was dying. In the first the chief morbid appearance was pneumonia, in the second pleuritis and pericarditis. In both, these diseases were associated with, and probably due to, a small oval bacillus; but in the first case this was almost quite confined to the vessels, and in the second it had passed from the vessels into the tissues. Indeed, the only point of close similarity between these two cases was the morphological resemblance of bacteria found in them. The circumstances that both patients were women of nearly the same age, that both had had the same disease, and that both had had the same operation done in the same ward and almost at the same time, suggested that they had both incurred the same kind of infection; however, the differences which have been pointed out do not, in my opinion, permit such a simple hypothesis.

CASE 12 (Fig. 17).—The following seems also to have been a septicæmia in which sarcosepsis was beginning.[24] It differed, however, in important particulars from the preceding. A man aged seventy-four had had varicose veins for forty years; these were followed by ulcers, which became septic and caused cellulitis of the leg and thigh. Free incisions were made into the suppurating areas, but his general condition became serious and such as is often seen in the septicæmias, from which disease he was thought to be suffering. His mind became dull and apathetic, he was drowsy and had to be roused to take his food, and he was delirious at night. His thigh was amputated through the upper third, and the operation was well borne. He died, however, twelve hours afterwards from syncope. During his last illness his temperature was usually betwixt 99° and 100° F. It once reached 101° soon after the cellulitis set in. His urine contained no albumen and had an acid reaction and a specific gravity of 1022.

FIG. 16.

Bacillary septicæmia. Short bacilli in the inter-muscular and subpericardial lymph spaces of the heart.

Mr. Shuter made an examination twenty-six hours after death; the weather was cool at the time. The brain, spleen, and kidneys were normal. The liver was cirrhosed, with stones in the gall-bladder. The lungs had scars and calcareous nodules at their apices, and were congested at the base. The heart was thick, soft, and with fatty walls; the tricuspid valve was ulcerated; the mitral valves were thickened and covered with vegetations; one cusp was almost non-existent. The great vessels were atheromatous. The ulceration was recent, but the other valvular changes were of long standing. Thus there was in the heart enough to explain the fatal syncope. But most of the disease was not of recent origin, and therefore we have to

[23] Les Bactéries, third edition, vol. i., p. 540 (Fig. 211).

[24] I am indebted to Mr. Groves for much assistance in the investigation of this case.

try to find out what precipitated the sudden failure of the heart's action. The main histological evidence of septicæmia was in the heart. The muscular substance had in places undergone slight fatty degeneration, but looked equal to its duties. There was a good deal of fatty infiltration. The venules and intramuscular capillaries were greatly dilated. Some of the capillaries were full of blood, but the veins contained none. The heart had evidently been engorged with blood. Some of the smaller venules had clearly been plugged with bacilli. (Fig. 17.) Vast numbers of bacilli still adhered to

FIG. 17.

Bacillary septicæmia. Large bacilli in bloodvessels of the heart.

their interiors, although it looked as if the bulk of them had been dislodged when the section was cut. These bacilli had slightly rounded ends. They sometimes occurred in twos, but not in strings. They were almost 1·5 μ wide, and their length was twice, thrice, or four times their width. They were as long as, but thicker than, anthrax bacilli. They had evidently multiplied by fission, but some of the larger bacilli had two or more clear spaces in their substance, which suggested the development of spores. In size and appearance these bacilli were exceedingly like the common and harmless hay bacillus (bacillus subtilis). Although grouped in the interior of the venules, some of the bacilli had penetrated the walls of the vessels and entered amongst the fat and muscular fibres. In places they had clearly been dragged amongst the muscular fibres and fat by the process of section cutting; but elsewhere some of the fat was infiltrated with vast numbers. The lungs were slightly hyperæmic, with catarrhal proliferation of their epithelium. Some of the vessels contained blood-clots, but no bacilli could be seen in these, or, indeed, in any other part of the lungs. The kidneys had merely undergone senile changes; they contained no bacteria. The liver likewise contained no bacteria; it was cirrhotic, but not in an advanced degree. The spleen was soft and pulpy, but no bacteria could be found in either its bloodvessels or tissues. If I am right in inferring that the heart had been engorged with blood, we would have some kind of explanation of the localisation of the bacilli in its venules and tissues. Karl Huber[25] has shown by an ingenious experiment that bacilli circulating in the blood localise themselves in hyperæmic areas. He inflamed the ears of rabbits with croton oil and then inoculated the tail of the animals with anthrax. The accumulation of anthrax bacilli in the inflamed ear was very decided. Thus the engorgement of this patient's heart may have determined the localisation of bacilli in the vessels. Beyond this it would be rash to go. If we suppose that the disease of the heart constituted a *locus minoris resistentiæ*, at which the bacteria congregated, it must not be forgotten that no bacteria were found in the liver, which was cirrhotic and, I ought to add, congested in places. Judging from their drawing, Cornil and Babes[26] seem to have met with a bacillary invasion similar to this in the case of a child twelve years old who died from a subacute septicæmia following cutaneous ulcerations. The bacilli were found in the vessels of the kidney, lungs, pleura, and in those of the skin. They were accompanied by a coccus infection, probably streptococcus pyogenes.

[25] Experimentelle Untersuchungen über Localisation von Krankheitsstoffen; Virchow's Archiv, Band cvi., 1886, p. 142.

THE DISTRIBUTION OF BACTERIA IN SEPTICÆMIA.

The unequal distribution of the bacteria is a feature of these cases of septicæmia. They seemed to have congregated in a single organ, such as the heart, lungs, or kidneys, in preference to the others. Whether this is an accidental or constant feature my cases are too few to decide; nevertheless, the possibility of its occurrence ought to be taken into consideration. Clearly the absence of bacteria from the body cannot be inferred from their absence from one or more of the organs. This congregation of bacteria in particular organs has struck other observers. Cornil and Babes[27] refer to it particularly under the heading of "primary bacterial nephritis." It is probable that when bacteria are circulating in the blood conditions of which we as yet know little determine their arrest in particular regions.

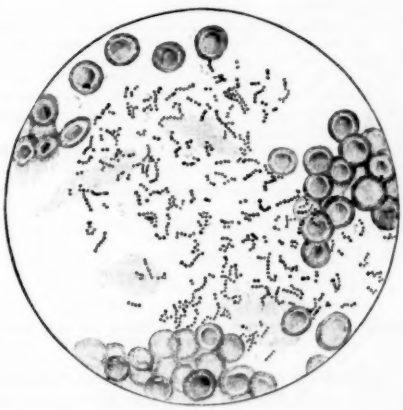
THE VARIETIES OF SEPTICÆMIA: STREPTOCOCCUS SEPTICÆMIA.

That septicæmia is not always a bacillary invasion of the blood, as might be inferred from the foregoing, was, I think, clearly shown by the following case of septicæmia following erysipelas.

CASE 13.—A stout woman aged fifty-five years was admitted into the isolation ward with cutaneous erysipelas of the right arm. There were the usual redness, swelling, and bullæ, with enlargement of the axillary lymphatic glands. The general symptoms were severe, with rigors, nausea, and a temperature of 104° F. The erysipelas spread from the arm to the back, shoulder, chest, and abdomen. It was still spreading on the seventh day, and upon the eighth she became restless and collapsed, with a feeble pulse. She died exhausted on the evening of the ninth day. Before the end the bases of her lungs, especially the left, became pneumonic, and her death was attributed to this complication and to septicæmia.

The examination disclosed nothing beyond what has been stated. There was much œdema of the cellular tissue of

FIG. 18.



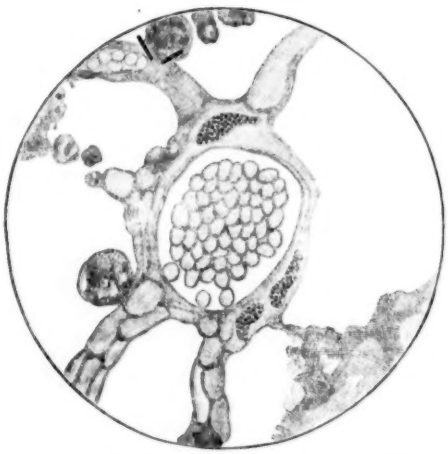
Streptococcus septicæmia. Streptococci in the blood of the right auricle. From a micro-photograph by Mr. Cosens. The lecturer is indebted to Messrs. Cassell and Co. for this figure, which is from his forthcoming article on Erysipelas in "A System of Surgery," edited by Mr. Treves, and now in the press.

the arm, axilla, and chest, with swelling of the lymphatic glands. The left lung was congested, but not solid; the right lung was also congested. The kidneys were much congested and swollen. The serum of the inflamed cellular tissue contained cocci, singly, in pairs and short chains. These were seen in cover-glass preparations. Sections of the inflamed tissues were crowded with cells, and the cocci

[26] Les Bactéries, vol. i., p. 476 et. seq. (Fig. 187).
[27] Ibid., vol. i., p. 545.

could not be seen with certainty. As the disease was of some days' standing this was not unexpected. The blood of the right auricle contained vast numbers of streptococci in short chains and entangled into masses. (Fig. 18.) Here and there the blood contained rather long, straight, or slightly curved bacilli, which were probably cadaveric. The lungs were enormously engorged with blood, and the air cells full of catarrhal exudation. Numbers of the smaller capillaries were plugged with micrococci. The emboli occurred in the capillaries of the walls of the air cells, and also in those in the walls of the pulmonary vessels and bronchi. (Fig. 19.) No chains could be discerned in these emboli, but none can be seen, as a rule, in similar emboli produced artificially by injecting streptococci into the circulation of rabbits. The

FIG. 19.



Streptococcus septicæmiæ. Micrococci in capillaries of the lungs. Two cadaveric bacilli are shown in the upper part of the figure. The blood contained others of the same kind.

kidneys were likewise engorged with blood, and the epithelium of their tubules was in an advanced state of cloudy swelling. Some of the smallest capillaries near the cortex and in the walls of the renal vessels were plugged with micrococci, as in the lungs; in the kidneys, however, the emboli were not so numerous. No bacteria were found in the liver, and the other organs were not examined. It is to be regretted that no examination was made of the heart. The clinical history seemed to show that that organ had not escaped the infection.

THE SO-CALLED ANTITOXIC TREATMENT OF INFECTIVE DISEASES, ILLUSTRATED BY DIPHTHERIA.[1]

BY BERTRAM HUNT, M.B. OXON.,

ASSISTANT IN THE DIPHTHERIA DEPARTMENT AT THE BRITISH INSTITUTE OF PREVENTIVE MEDICINE.

DR. BERTRAM HUNT, after acknowledging his indebtedness to his friend Dr. Ruffer for having suggested to the Pathological Society that he should open the discussion, stated that he would deal with the subject in the following order: (1) a short glance at the history; (2) the bacteriology only so far as was necessary to a proper understanding of the production and nature of the toxin; (3) the result of introducing this toxin into animals with the production and nature of antitoxin; and (4) the pathology so far as it affects the prognosis of the treatment. The history divides itself into the prescientific and the scientific ages. The latter period may be said to have commenced with Pasteur, who discovered that protection could be conferred by artificial mitigation of virus, the honour of which discovery is fully shared by Koch. In 1887 Salmon and Smith proved that not only mitigated bacteria but their products were able to confer protection, Sewall that immunity was possible to cobra poison, and Fodor that the blood was able to destroy bacilli. In 1891 Behring showed that if immunity to tetanus or diphtheria had been conferred upon animals their blood or serum was found not only able to protect other animals against either the bacteria or their soluble specific poisons, but even to cure them if injected subsequently to the virulent matter; and as a mixture of the serum with the toxin *in vitro* was found to be quite innocuous he called the serum "antitoxic," and the unknown substance in the same "antitoxin." In 1891 was published, too, what might be regarded as the first reading-book on this subject—namely, Ehrlich's work on the immunity conferred by feeding on animals against the vegetable poisons ricin and abrin. There are, therefore, two methods known of protecting against infective disease: (1) active immunity (more or less permanent) by the Pasteur method of introducing mitigated virus, with consequent slight illness, recovery, and protection against a virulent virus; (2) passive immunity (temporary only) by the Behring method of introducing mitigated bacteria or their products, with slight illness, recovery, and protection against a virulent culture or toxin, and the transference of this immunity to another animal by the injection of blood or serum taken from the first. In the first method the animal forms its own antitoxin; in the second it is previously formed in another animal and transferred as a therapeutic agent.

Production of the toxin.—Roux and Yersin noticed that a certain supply of oxygen to the bouillon culture increased the virulence of the toxin, which depended chiefly on the alkalescence of the medium. It being troublesome to pass air through a culture, he (Dr. Hunt) had devised methods of obtaining bouillon surface growth whereby a virulent toxin is quickly attainable by floating powdered cork or little rafts made of cork wrapped round with wool and muslin, which serve as nutrient islands. The bacilli have an inveterate predilection to spread over a surface. The question of the action of oxygen on a pathogenic bacillus is extremely important and interesting. The virulent bacillus renders its culture media acid in twenty-four to forty-eight hours; the toxin is only found in an alkaline culture—and is, as he would suggest later, only soluble in an alkali. The action of the oxygen, in his opinion, was to prevent the acidity altogether, and although its free admission tends to encourage a merely saprophytic or non-pathogenic growth of bacilli, this disadvantage is more than counterbalanced by the maintenance of an alkaline reaction. Dr. Ruffer has found that cultures exposed freely to a supply of air do remain alkaline. Pasteur's classical experiments with yeast cells form an interesting comparison, for he found that surface cultures freely exposed to the air developed a vigorous yeast; yet there was little or no fermentative action, this only taking place when some of the aerobic cultures were afterwards cultivated anaerobically. There is no evidence that this exuberant aerated growth of bacilli has acquired any accession of virulence. In fact, as he (Dr. Hunt) had shown as regards methylene blue and the diphtheria bacillus a constant supply of oxygen, allowing of permanent reduction, is soon fatal to them. A free admittance of oxygen to the culture promotes, therefore, the growth of the bacilli, and leads to an early formation of the toxin, suggesting that the specific poison is some constituent of the bacterial protoplasm. Bacterial specific poisons were at first supposed to be ptomaines, and, although bacteria do many of them produce alkaloidal and other poisons, they are of no importance to the subject under consideration that evening, nor, indeed to any problem of immunity, in that they are not specific. Brieger and Fraenkel described a poisonous proteid which they called toxalbumen or proteid poison—an excellent name, as it implied a specific nature. In this country Hankin and Dr. Sidney Martin described the formation of albumose. The choice of the word albumose was unfortunate, for it was necessary to distinguish carefully between the vital chemical processes of the bacteria and of the action of these on their environment. Buchner had succeeded in growing tetanus bacilli in a solution of asparagine and in obtaining by precipitation a most virulent toxin. Experiments showed that toxin was elaborated not in the media but in the protoplasm of the bacteria—a proteid poison being formed in a solution containing no albumen, and that the production of bacterial poison was due to synthetic and not fermentative action. He would define, then, the diphtheria toxin as a specific proteid poison. But it must

[1] Abstract of a paper read before the Pathological Society on Tuesday, March 5th.

be clearly understood that it was not necessarily the proteid which was the poison, but what might perhaps be described as its disposition, its active and specific quality. Such active proteids had been called living proteids, and if this were adopted, then the toxic quality must be defined as the life in the proteid. The proteid having adherent to it this toxic quality is probably the myco-nucleo-albumen described by Gamaleia, a substance soluble only in alkaline media. This toxin, this vital chemical quality of bacterial protoplasm, was concerned in the metabolism of the bacteria, but it also constituted the offensive and defensive weapon of the microbe in its struggle for existence. He would say that in all living cells the protoplasm had this vital function. It was necessary, he thought, to regard the animal organism as a collection of pure cultures of cells of various types living together in harmony and in a state of complete chemical compatibility; as the forms of life fittest to survive in that particular environment the animal body; as resenting the intrusion of foreign substances, whether alive or dead, and with offensive and defensive weapons to maintain their existence, these weapons being chemical ones. In short, applying Darwinism to this question of immunity, we may consider the strife between the cells and the bacteria as a struggle for existence fought out between the synthetic vital processes arrayed on both sides. In animals which had a natural immunity to any infective disease it was obvious that the specific myeo-proteid elaborated by the bacteria causing that disease must be either inoffensive or easily destroyed by the cells, and that it would occasion no struggle, no additional chemical activity in the animal cells—i.e., no constitutional or local disturbance. It ought not to be expected that such a body should be modified in any way, but merely excreted or quietly and quickly destroyed. In susceptible animals, on the other hand, there was a struggle, for a foreign proteid was introduced that was offensive and harmful to the animal organism, which organism, if it gained the upper hand, was able to yield us a substance of the highest therapeutic value.

Behring enunciated certain laws which must be obeyed in the process of immunisation. 1. It was absolutely necessary to wait until the animal had completely recovered before a fresh injection was given. 2. That the antitoxic value of the blood reached a maximum coincidently with this return to perfect health and then fell somewhat to a more or less constant level for a time. 3. That any fresh injection of toxin was best made when the antitoxin value was at its highest. 4. That the more susceptible the animal the greater the degree of immunity finally attainable and the more antitoxic the blood. 5. That the immunisation could be carried too far and a condition allied to natural immunity or a poison-proof state brought about. Behring chose the sheep, but their immunisation is a tedious process, and consequently Aronson and Roux chose the horse. Antitoxin was very different in its action to that of any modification of toxin *as yet known to us*. For it was therapeutic, whereas toxin mitigated by any of the ordinary methods if injected simultaneously with virulent toxin was found to accelerate the fatal termination. Antitoxin was, moreover, perfectly harmless, and the immunity which it conferred was immediate and temporary. Buchner had settled once for all time that direct antitoxic antidotal action of the antitoxin to the toxin neither took place *in vitro* nor in an animal organism, as had been maintained at first by Behring. The two substances—antitoxin and toxin—existed side by side, and no neutralisation occurred. Antitoxin, moreover, acted merely as a stimulus to the chemical processes of the cells, and if these cells be enfeebled in any way and their vitality lowered, the stimulus failed to rouse them and the antitoxin was of no avail. Just as in animals immune to diphtheria a curative substance was found in the blood, so presumably a similar curative substance must be obtainable in the case of all diseases caused by the invasion of the animal organism by any kind of cell foreign to it. A law, therefore, might be laid down that, whenever disease is set up by the invasion of any other form of life into the animal organism, immunity to such disease would confer curative properties on the blood of the immune animal. This curative quality of the serum in immunity to diseases had been designated as antitoxic only in tetanus and diphtheria, and not in the others, because the bacteria concerned in their production did not produce any definite specific poison for the serum to have been erroneously supposed to be able to neutralise. It had not been called antibiotic because it was far easier to show that such serum possessed no antibiotic power than that so-called antitoxin had no antitoxic power. Hence, antibiotin has not been invented to describe such curative agents. It must not be supposed, however, that any possible increase of the natural germicidal power in the blood of the immune animal was denied, but it was only maintained that the substance here designated antibiotin had no antibiotic qualities in itself, and, as Buchner had pointed out, the serum of an animal might be deprived of its antibiotic or bactericidal quality by heat, and yet could retain its specific curative quality. In order to prove that antitoxic treatment was in reality a rapid process of immunisation it was only necessary to compare the action of these antibiotins with diphtheria antitoxin. (Reference was here made to Pfeiffer's experiments on the blood of animals immune from cholera.) The treatment of guinea-pigs with curative serum in experimental cholera injection might be defined as being merely a rapid immunisation method, so rapid as to be practically instantaneous, and there was no reason to doubt but that the action of antitoxin in diphtheria was precisely similar. The best way, therefore, to express the method and meaning of this process of protection was by calling these protective and curative qualities of the blood of immune animals specific immunising or curative agents.

Attention might now be drawn to the rapidity of the immunisation in diphtheria. In an ordinary poisoned wound of the finger the absorption of the poison could be traced along the lymphatic system. In simultaneous injection of diphtheria toxin and antitoxin the mixed solution must pass through the lymphatic glands, and in the presence of the antitoxin the cells were able to deprive the toxin of its injurious character, and, therefore, no illness resulted, and there might be no local reaction—in other words, a condition of immediate immunity would seem to be conferred on the tissues in which the injection was made. Buchner would seem at one time to have thought that antitoxin might be obtained directly from the bacterial protoplasm, but it must be considered, he (Dr Hunt) thought, to be either a direct or indirect product of the animal cells, either as a secretion or as an excretion. Buchner had given a valuable comparison between the bactericidal substance present in serum—namely, alexin, which was a direct product of the animal cells and the so-called antitoxin. Alexin was able to destroy bacilli, was very unstable, and varied with the species. Antitoxin, on the other hand, had no bactericidal action, could withstand a temperature of 70° to 80° C., was unaffected by sunlight or putrefaction, and never varied with the species of animal, but always with the species of bacteria through whose agency it was formed. Tetanus antitoxin cured tetanus, but not diphtheria, and *vice versâ*, which was strong proof that these specific curative agents found in the blood of immune animals could not be direct products of the cells. Further experiments of Pfeiffer were adduced to show that the specific nature of the curative agents militated strongly against the assumption that antitoxin was a direct product of the cells. Moreover, natural immunity was not transferable, and it was impossible to bestow bactericidal power on the blood of one animal by the introduction of an efficacious alexin from that of another. A well-recognised direct secretion of cells was therefore not transferable. Antitoxic treatment of diphtheria was the successful transference of some curative agent and this distinction between alexin and antitoxin suggested that antitoxin was some foreign matter circulating in the blood of the immune animal. He defined antitoxin and the specific curative agents found in the blood of animals immune to infective diseases as being the specific proteids of the bacteria to which immunity had been attained, modified and digested by the cells, and that whatever their chemical nature was they must be considered as derivatives from such myeo-proteids, still possessing some degree of their specific nature, but with a wholly beneficent character. To regard specific curative agents as being of this nature was to find an explanation of many otherwise most puzzling facts. If the conclusions arrived at were correct it should follow that if a series of animals was taken of all degrees of susceptibility, from one possessing a natural immunity up to an animal of the most extreme susceptibility, the further removed the animal was from the condition of natural immunity the more antitoxic the serum should prove; for in the very susceptible animal no destruction but only the requisite beneficent mitigation of the poison would take place. This was one of Behring's laws. One observation that militates against this conception of

antitoxin had been reserved because the answer to it afforded a clue to the way in which it was formed. Roux discovered that if a highly immunised horse was bled, and then subsequently bled without any intermediate injection of toxin, the second bleeding yielded serum with an antitoxic value equal to that yielded by the first bleeding. He (Dr. Hunt) thought the explanation of this was to be found in the phenomenon of cumulative poisoning (as for example strychnine), and cited a paper by Metchnikoff giving the results of experiments carried out at Dorpat in support of this. The cells of the horse become accustomed to the toxin, they begin to take it up and to slowly excrete it in the form at present known as antitoxin; but this process was a constant one, and much toxin was kept stored up in the cells, so that even if no fresh introduction of toxin was made the blood might yield antitoxin for a considerable time. Finally, antitoxin had certain physical similarities to the toxin which produced it, both being precipitated by entanglement, and both soluble only in an alkaline solution.

If antitoxin was merely toxin altered and excreted by the cells, how is its action as an excito-cellular stimulus to be explained? Buchner had shown that the injection of any proteid matter, foreign to an animal organism, increased the antibiotic power of the blood, and Rumpf obtained distinct therapeutic results in typhoid fever by the injection of the dead bacilli of blue pus. Klein also found many dead bacteria protective against cholera. He suggested as an explanation that the specific myco-proteids had a quality or disposition hostile or injurious to animal cells. This quality might consist of some particular molecular arrangement or vibration. If the cells succeeded in conquering, in digesting, this proteid poison, they would effect this by causing an alteration of such molecular arrangement. This altered arrangement being the result of a cellular effort of a particular kind, and possibly bearing the mark of that effort stamped upon it, it might be conceived that whenever this altered substance was brought into contact with cells similar to those which had bestowed the fresh molecular arrangement upon it, a cellular effort identical with that originally excited would be instantly induced.

Dr. Hunt concluded by a reference to the pathology of diphtheria, and stated that the essential factor in prognosis is the amount of damage already done before treatment is commenced. He had found an extremely early fatty degeneration of muscle structure, and in particular of the muscles having most work to do (the heart and respiratory muscles), in guinea-pigs infected with diphtheria. The early appearance of this degeneration in experimental diphtheria was very important to the prognosis of antitoxin treatment, and explained how the best results were obtained by its early exhibition and how a larger dose may be necessary, if given later, to effect the necessary excito-cellular stimulus.

CASES ILLUSTRATING THE SURGERY OF THE KIDNEY.

BY J. KNOWSLEY THORNTON, M.B., C.M. EDIN.,
CONSULTING SURGEON TO THE SAMARITAN FREE HOSPITAL FOR WOMEN AND CHILDREN, AND TO THE NEW HOSPITAL FOR WOMEN, AND THE GROSVENOR HOSPITAL FOR WOMEN.

(*Continued from p. 538.*)

CASE 33.—A woman aged thirty years, single, was placed under my care by Mr. Malcolm Morris. The family history was a bad one; her father died from phthisis; her mother was alive, but sickly; two sisters were living, one sickly; all the other children, six in number, died young. The patient had been strong and healthy. Five years ago she began to suffer with pain over the left kidney, and had ever since had an attack about every six months, each successive attack being more severe than the former one. The last six months she had begun to lose health and feel unfit for her work. She never passed blood or matter in the urine. The urine examined on several occasions was normal, except that it contained a good many oxalates and a great deal of renal epithelium. There was on examination very marked tenderness over the left kidney, but I could not define the organ. The right kidney was large, smooth, and somewhat too mobile. Just before I saw her she had begun to suffer with pain in the right side also, but it never began in the right side only when the pain in the left was severe. It was decided that I should explore the kidney, and I operated on Feb. 19th, 1890, and found a sacculated kidney, the cortex much thinned and pale, the pelvis and calyces much dilated, the ureter healthy, but so small as to be obviously inadequate. I removed the kidney, tying the vessels separately and ligaturing the ureter low down towards the bladder and dropping the stump in. The right kidney was large, smooth, and somewhat globular, but appeared to be quite healthy. The removed kidney weighed 2¾ oz. This, again, appears to be a case of gradual destruction of the kidney from inadequate size of the ureter. The patient made an uninterrupted recovery, and I heard quite recently from Mr. Malcolm Morris that she remains in excellent health.

CASE 34.—A married woman aged forty-three years, the mother of thirteen children, the youngest sixteen months old, four of them dead, was placed under my care at the Samaritan Hospital by my friend and then colleague, Dr. Prickett. In the right side of her abdomen, in the situation of the right kidney, was an irregularly oval, smooth, and not very tender tumour about four inches long. She had never had any urinary trouble. The urine examined was of low specific gravity, but otherwise normal. Her father died from stone in the bladder; her mother was alive and healthy, aged seventy-four years; eight brothers and sisters were alive and well, some more had died from acute diseases. One aunt died from mammary cancer. Before the last confinement, twins, she was very large, and then first began to have pain in the right side, and when she got up noticed a lump there. I operated on May 28th, 1890, and found a sarcoma growing from the middle of the convex border of the kidney and not affecting the pelvis at all; it was apparently covered by the capsule of the kidney, and was separable from the kidney tissue, not infiltrating. Unfortunately, through press of work at the time I did not get it examined microscopically.[1] The patient was suffering before the operation from advanced phthisis, and this was, I think, rather accelerated by the operation, and she died at the end of July with a large cavity in the left lung and the right also beginning to break down.

CASE 35.—This patient was a woman aged forty-two years, but looking much older, single, and very delicate. She had never had any serious illness till April, 1889, when she had a severe attack of influenza, which laid her up for several weeks. The pain first appeared during this attack in the right side and hip, and then, while lying in bed, she noticed a considerable swelling in that side. When she got up she suffered much pain in the back on the right side, which was increased by walking. I found a large fluctuating tumour in the right renal region, which I believed to be a hydronephrosis, and advised its removal. The operation was performed on Dec. 1st, 1890, and I could find nothing to account for the hydronephrosis. The ureter appeared quite normal in size and arrangement. I tied the vessels separately and pinned the ureter out in the lower angle of the wound. She made an uninterrupted recovery, and remains well. In 1891 she wrote to me that she was feeling better than she had done for a long time. The pathology of a case of this kind is obscure. I think there must be some abnormality in the ureter which is not recognisable when the abdomen is opened—for example, undue length leading to kink in certain positions of the body. This would, of course, become accentuated when once the pelvis of the kidney began to distend, till at last it might be so bent upon itself that no urine escaped at all. Seeing, as I now do, a large number of renal cases in consultation, I am strongly impressed with the close association of the uterine displacements with renal troubles, and I hope before long to call the attention of the profession more decidedly to this subject. I have long been convinced that many healthy ovaries have been removed for pains which were really renal or ureteral; and I am sure there is another side to the picture, and that in a certain number of cases the whole attention is fixed on the kidney when the heavy displaced uterus is the primary ailment.

CASE 36.—A woman forty-nine years of age, a widow, was placed under my care by my old friend, Sir Joseph Lister. She had ceased to menstruate suddenly seven years earlier, and then began to have hæmaturia with pain in the right

[1] The specimen was sent quite fresh to the Royal College of Surgeons of England, but unfortunately does not appear to have been examined or kept.

kidney. The attacks only came once in twelve or six months, usually without warning and at night. There were blood and clots at the end of the act of micturition, then pain in the back and the loins, with frequent micturition. I found a firm, smooth, elastic, and very mobile tumour in the situation of the right kidney, and advised its immediate removal. There were small pea-like glands in both groins. The operation was performed on Dec. 11th, 1890, and was troublesome on account of the large size of the vessels in the capsule. The renal artery and vein were also greatly enlarged, and the former had a strong thrill in its pulsation. I found one much enlarged gland behind the kidney and removed it, but it was unfortunately lost. The left kidney appeared to be quite healthy. The growth chiefly affected the front and lower end of the kidney, the upper part of the organ being large and normal. The growth was at one point clearly fungating through into a large vein or venous sinus. Small fragments from this projecting portion were like granulation tissue, and corresponded exactly with minute fragments found by Mr. Malcolm in the urine before the operation. The main mass of the tumour was firm and glistening on section, and was made up of bundles of fusiform cells, with spaces in which were masses of small round cells. The patient made a very smooth recovery, but in May, 1892, came to me complaining of pain in the right side of the head and behind the ear, with retching in the early morning, and she died a few months later with distinct evidences of secondary deposit in the brain.

CASE 37.—The patient was a woman aged forty-two years, married; it was a case of removal of a large suppurating kidney with an enormous retro-peritoneal abscess, probably tuberculous. The patient was in a very exhausted condition before the operation, with severe sweating and high temperatures, and immediately after the operation began to have offensive diarrhœa, with dark green sickness. The discharge from the drainage-tube became also quickly offensive, and she died just forty-eight hours after the operation, with a falling temperature of 99·6° F. and a rising and finally uncountable pulse and complete suppression of urine. The patient's condition before operation was such that it was merely a forlorn hope which failed. I think that the surgeon is bound to give the patient the chance if it is desired, though such cases make sad work of statistics, and make it difficult to estimate the true mortality of an operation. Cases 12 and 20 in my table[2] are of the same class, the latter being curiously like this case, as the patient was a married woman aged forty-two with a large perinephric abscess round a suppurating kidney, also probably of tuberculous origin, and she also died in much the same way in forty-eight hours. As I said then I repeat now, if such cases would only come to the surgeon earlier the results would be very different.

CASE 38.—A married woman aged thirty-eight years, the mother of several children, was sent to me early in 1892 by Mr. Crew of Thrapston. In the previous April she had had a sudden attack of pain in the left loin and had never been quite free from pain since, though it was sometimes more severe than at others. On talking it over with me she remembered a similar attack nearly two years before, which had come on after severe straining at stool, and lasted nearly a week. Menstruation was regular. There was no nausea or sickness and no distinct history of any hæmaturia. Before coming to me she had been seen by Dr. Ralfe, who thought she had renal calculus. The only noteworthy points about the urine were a slight trace of albumen, a few oxalates, and an excess of renal epithelium. The left kidney was markedly tender, especially towards the pelvis. It was decided that I should explore it. I operated on March 16th, 1892. The right kidney was rather large, but healthy; the left had a number of tense cysts about the size of marbles projecting from its lower end, and in its pelvis a small, hard body, which I at first thought was a stone, but afterwards found to be a similar cyst projecting into the pelvis. It was decided to remove the kidney, and during enucleation a vessel was torn and slipped back into the retro-peritoneal cellular tissue, and a large thrombus formed so rapidly that I was obliged to tie the renal vessels and ureter *en masse* and remove the kidney. I passed a rubber tube out through the loin, and there was a good deal of dark fluid oozing from it for the first forty-eight hours. She made a very smooth recovery, but in October, 1893, she came to see me complaining of pain over the left iliac crest, with occasional throbbing exacerbations, accompanied by pus in the urine. On making a careful bimanual examination I could distinctly detect the remains of the ureter swollen and tender, and I have no doubt that it has suppurated, a condition I have before noted when I have not been able to bring the cut end up into my abdominal incision. The kidney, after removal, was found to contain a considerable number of cysts at its lower part varying in size from a large marble to a small pea, and so very tense and hard that one could easily understand that they were a constant source of pain, and that this would be likely to be increased by anything like severe straining at stool. The small cyst projecting into the pelvis was the only one above the lower third of the kidney, the rest of the organ being healthy. This case adds another pathological condition of the kidney difficult or impossible to differentiate from calculus without exploration.

CASE 39.—On March 16th, 1891. I explored the kidney of a married woman, a patient of Mr. Ray of Dulwich. She had long suffered with abdominal pains in various situations, and before I saw her Dr. John Williams had removed her ovaries, and Mr. Durham had operated for a curious warty condition of the vaginal mucous membrane. When I first saw her at Mr. Ray's request I found her very ill in bed, with high temperature, rapid pulse, much emaciation, and constant pain over the left kidney, with occasional severe exacerbations down the ureter, and she was passing the most horribly offensive urine I have ever seen, loaded with blood and pus. The warty condition of the vagina had also returned and there were occasional hæmorrhages from it. I came to the conclusion that she was suffering from pyelitis, and that it was probably from calculus, and that the stone was very likely in the ureter. The latter condition was suggested by the fact that while passing the horribly offensive and bloody urine she would suddenly pass a specimen or two quite clear and acid. It was, therefore, decided that I should explore the abdomen. I found two minute stones embedded in the ureter rather more than half-way down; they were both quite small and very angular, the lower one being the larger one, and this probably accounted for the long stick they had made. They were quite immovable, and as it would obviously be extremely dangerous to open the ureter for their removal with the knowledge of the fetid material penned up behind in the kidney, and the husband was not prepared to assent to the removal of the kidney, I closed my incision, the hope being that they might still gradually find their way into the bladder. We waited a little over a year, and her condition was then so extremely grave that it was decided that I should remove the kidney, leaving the stones in the ureter to take care of themselves, as in Case 19, already recorded, in which the stone in the ureter never gave any serious trouble after removal of the kidney. On proceeding to operate on March 31st, 1892, I found that the stones had moved down fully an inch, and that, instead of being close together, there was now a slight space between them. The operation was prolonged by the separation of a good deal of omentum and a coil of small intestine which had adhered to my former incision. The anæsthetic was also very badly taken, the patient being several times in great danger; special care was also necessary in enucleating the kidney in view of its foul contents. This was accomplished satisfactorily, and the vessels ligatured and divided apart from the ureter; and I was then able to extract the kidney from the abdomen, attached only by the ureter, the division of the latter being made altogether outside the abdomen. I carefully cleaned the opened end with a strong solution of corrosive sublimate, and then pinned it out through a small hole in the skin of the loin. When I was sponging out the peritoneum I found a coil of gut firmly adherent to the under-surface of Dr. John Williams' oöphorectomy incision and thought it advisable to free it. This was only accomplished by long and careful dissection, and the patient was on the operating table two hours and a quarter. She made a good recovery, and, as I had hoped, the warty condition of the vagina rapidly subsided when it ceased to be irritated by the foul urine. There was such a mass of hard, cracked, and bleeding warty tissue on the anterior vaginal wall near the urethra that it might well have been thought to be malignant disease. The after-history of this case has not been so satisfactory as I could have wished; there have been periods of good health, but from time to time suppuration

[2] Transactions of the Royal Medical and Chirurgical Society, vol. lxxii.

evidently occurs in the remains of the ureter above the calculi, and when the pus is discharged into the bladder a condition of things is produced almost as bad as when the kidney was still in work.

THE PRESYSTOLIC APEX MURMUR OF AORTIC REGURGITATION: WITH NOTES OF A WELL-MARKED EXAMPLE.

BY THEODORE FISHER, M.D. LOND.,
REGISTRAR TO THE BRISTOL GENERAL HOSPITAL.

A LOW-PITCHED presystolic murmur may occasionally be heard over a small area immediately around the impulse in cases of aortic regurgitation. The high-pitched, blowing, diastolic murmur is possibly audible from the base to the apex and even outwards into the axilla, but just at the point of the heart's impulse a rumbling sound takes its place. Such a low-pitched sound will probably be made to disappear by slight pressure of the stethoscope, and may thus be overlooked. Cases, however, have been recorded by Austin Flint, Guiteras, Gairdner, Osler, Maguire, Lees, and others in which a more or less well-marked presystolic apex murmur was present where aortic valve disease was the only heart lesion. The following case is an example of that curious occurrence of the murmur. In this instance the presystolic bruit was not low-pitched and rumbling, but of that loud, rolling character that reminds one of the sound produced by a flapping sail as it is filled by a puff of wind. Well marked though the murmur was, the mitral orifice proved to be of natural size.

CASE 1.—A man thirty-two years of age was admitted into the Bristol General Hospital on Aug. 28th, 1894, under the care of Dr. George Parker, who has kindly given me permission to publish the case. The patient was a thin, wiry, rather short man. He was markedly cyanosed, and although there was no orthopnœa he was in great distress. He generally lay on the right side with his head resting upon his right forearm, but quickly rose to the sitting posture at the onset of a frequent short cough. There was slight œdema of the legs, but no swelling of the abdomen. The history was interesting, but need not be given here; it may, however, be mentioned that he apparently had not had rheumatism, and there was no evidence of syphilis. The heart's impulse was in the fifth space in the nipple line, where it was accompanied by a distinct presystolic thrill. The cardiac dulness was very slightly increased on the left, but was well marked at the fourth and fifth spaces to the right of the sternum, extending about two inches outwards in the latter space. There was a loud presystolic apex murmur of rolling character, which increased in intensity as it approached an abrupt termination. Although, however, the termination was abrupt and loud the first sound was not distinct, and the notes state: "There is nothing that can be called a first sound; what appears to be the first sound has a broken character." The area over which the murmur was well marked was small and situated immediately around the impulse, but a duller rolling sound was heard more widely. In addition to this murmur a *bruit de galop* was heard in a somewhat unusual position below and outside the impulse. Three separate sounds were there distinctly audible. There was no systolic murmur at the impulse, but between that point and the sternum a high-pitched systolic bruit became audible, and was heard from the fifth to the second right and left spaces. A diastolic murmur of high-pitched blowing character was audible down the left of the sternum. Behind the sternum another murmur, loud and half squeaking, half musical, was sometimes heard. This the patient said that he had noticed. The pulse was regular, 100, small, but aortic in character (see Chart). The patient steadily grew worse and died on Sept. 24th. Nothing fresh of importance developed except moderate effusion into the right pleura, which was twice aspirated. On the day of death it was noticed that a systolic murmur was audible at the impulse, and that the triple sound formerly heard outside the apex had disappeared.

Necropsy.—At the post-mortem examination the situation of the apex was found to be at the sixth rib in the nipple line, and the right auricle extended three inches to the right of the sternum. The pericardium was healthy. The heart was enlarged and weighed twenty-two and a half ounces, the enlargement being mainly in the left ventricle, the wall of which measured from three-quarters to seven-eighths of an inch in diameter. There was comparatively little dilatation. The mitral valves were perfectly healthy, and the orifice of normal size. It measured four inches. The tricuspid valves were also healthy. The orifice measured four inches and a half. The main feature of interest was in the aorta. Immediately above the valves the vessel was surrounded by a raised area varying in breadth from three-quarters to one inch and a half. The upper border was serpiginous and the surface irregular and pouched. The post-mortem examination did not take place until forty-four hours after death, and the thickened area was deeply blood-stained, but seen earlier it would no doubt

Pulse tracing.

have presented the grey appearance of the aortitis generally attributed to syphilis. The aortic valves were slightly thickened, but only one, the right posterior, was deformed, and that was retroverted. The endocardium over the septum ventriculorum was greatly thickened where the regurgitant stream had impinged. The orifices of the coronary arteries were not obstructed and the vessels themselves were quite healthy. The heart muscle looked normal and the portion microscopically examined showed no pathological changes. Microscopic sections of the affected aorta gave evidence of active disease. There was fibroid thickening of the greater part of the intima and media, but groups of leucocytes were scattered through the outer half of the vessel and through its sheath.

Remarks.—In this case a well-marked presystolic murmur and a presystolic thrill existed in association with incompetence of the aortic valves, but with a perfectly normal mitral orifice. It is now well known that the physical signs of mitral stenosis may occasionally be present in cases of disease of the aortic orifice; and in examining the records of a large number of cases of death from various forms of heart lesion at Guy's Hospital I discovered several more or less well-marked instances of a presystolic apex murmur where the aortic orifice alone was affected. The following single example may be briefly referred to by kind permission of Dr. Hale White.

CASE 2.—A man forty-five years of age was admitted into Guy's Hospital under the care of Dr. Hale White in 1892. The heart's impulse was in the sixth space, three inches outside the nipple line. There was a presystolic thrill at the apex, and the notes state: "There is a harsh presystolic murmur at the point of impulse in the sixth space. At the base there is a to-and-fro murmur." The pulse was "splashing," being 92 to the minute.

Necropsy.—At the post-mortem examination the mitral orifice was found to measure four inches and a half, and the valves were quite normal. The aortic valves were also quite healthy; but there was pouching of the sinuses of Valsalva, with dilatation of the first part of the aorta, which led to regurgitation through the aortic orifice. There was a thickened patch of endocardium on the septum ventriculorum where the regurgitant stream had impinged. Dr. E. W. Goodall, then medical registrar, adds a note at the end of the clinical report. He says: "As regards the presystolic thrill and bruit, they were marked, and mitral stenosis was diagnosed as existing. The thrill and bruit may perhaps be accounted for by Austin Flint's hypothesis."

Remarks.—There is one point of morbid anatomy I should like to draw attention to in this case and in the one that precedes it—that is, the situation of thickened endocardium upon the septum ventriculorum showing the point of impact of the regurgitant stream. This is of some interest since it negatives the explanation Dr. Sansom has suggested for the presystolic murmur of aortic regurgitation. He has thought it probable that the regurgitant stream, impinging upon the anterior mitral flap, may set up vibrations that lead to the production of the presystolic sound.

These two cases show that the regurgitant stream need not be directed upon the valve, and one other case that may be briefly noticed seems to show that a presystolic murmur may exist in association with aortic valve disease without any regurgitation being present.

CASE 3.—A man aged forty-seven years was twice admitted to Guy's Hospital under the care of Dr. Pavy in 1879, and on both occasions a presystolic apex murmur was noted by different clinical clerks. The medical registrar also heads the report: "Well-marked presystolic bruit." At the post-mortem examination, however, the mitral orifice was found to admit four fingers. The aortic valves were adherent half way up their edges, but were considered by Dr. Goodhart to have been competent. Allowing Dr. Goodhart's conclusion to be correct, it is obvious that not only need the regurgitant stream not impinge upon the anterior flap of the mitral valve, but that no regurgitant stream need be present for the production of a presystolic apex murmur.

This leads us to a form of presystolic murmur in which I am somewhat interested, a murmur occurring in dilatation of the heart in which neither mitral stenosis nor aortic disease is present, but the most common lesion is adherent pericardium. A paper upon this subject was read by me at the last meeting of the British Medical Association. A copy of this paper sent for abstract to a foreign journal fell into the hands of the conductors of the *Medical Press and Circular*, and was published by them without my knowledge in the number for Oct. 10th, 1894. That being the case, I must refer any interested reader to that periodical for detailed information. Brief notes of twelve cases of diastolic or presystolic apex murmur occurring without mitral stenosis or disease of the aortic valves are given. Ten of them are from the Guy's Hospital records. Of the twelve cases, in eight the pericardium was universally adherent, and in only two the pericardium was healthy. In five other cases of general adhesion of the pericardium a presystolic apex murmur was heard, but they have been excluded because the pathologist thought the aortic valves probably incompetent. The existence of a presystolic murmur in the above cases was noted not only by the clinical clerks but also in the majority of instances by the physician or medical registrar. Thus, Dr. Goodhart adds marginal notes in two instances. In one, a girl aged eleven years in whom the mitral orifice was found to measure four inches, he describes "a distinct presystolic thrill and a rumbling, long, diastolic murmur in the fifth and sixth spaces." In another case, a boy aged nine years, where the orifice measured four inches and a half, Dr. Goodhart mentions "a short, roaring, diastolic sound," and calls it "a diastolic mitral." Dr. Frederick Taylor also noted a large diastolic thrill and a diastolic rumbling sound where the mitral orifice was perfectly normal. Dr. Pye-Smith and Dr. Hale White both diagnosed mitral stenosis incorrectly from the presence of a presystolic murmur, and Dr. Newton Pitt also noted a presystolic apex murmur where the mitral orifice measured four inches and seven-eighths.

In all these cases there was adhesion of the pericardium. It is therefore evident that there are two entirely different pathological conditions that will give signs simulating those of mitral stenosis—namely, disease of the aortic orifice and adherent pericardium. Such being the case, it is reasonable to conclude that some condition common to both must be concerned in the production of the murmur. The most obvious feature is dilatation of the left ventricle, and it may be supposed that the mitral orifice is small compared with the size of that cavity and thus produces a virtual stenosis. The large size of the orifice, however, in some of the cases of adherent pericardium excludes the possibility of such an explanation, and curiously enough it was in those forms of heart disease in which a virtual stenosis probably exists that, with one exception, I failed to find instances of a presystolic apex murmur having been noted. I refer to cardiac dilatation due to chronic Bright's disease, and to less definite but probably not infrequent causes such as alcohol and overwork. Since we reject a virtual stenosis as an explanation we must consider what other conditions may be present in a dilated left ventricle. It may have been noticed in the post-mortem room that when a dilated ventricle is present the large anterior flap of the mitral valve may be held taut by columnæ carneæ and chordæ tendineæ that have not fully shared in the dilatation. During life, as the ventricle becomes filled during diastole this state of tension must be present in the large mitral flap, which, held out in the moving blood currents instead of falling against the septum, may be left free to vibrate. Dr. Stacey Wilson in his interesting lecture upon Dilatation of the Right Side of the Heart gives a similar explanation for the diastolic murmur sometimes heard over the right ventricle.[1] On endeavouring to accept such a view we, however, again meet with difficulty. If such an explanation were correct one would expect a presystolic apex murmur to be common in dilatation of the heart from any cause and especially in those cases of dilated heart in which the mitral valves remain healthy—for example, those consequent upon Bright's disease and other causes affecting the heart muscle. In the Guy's Hospital records for twenty years one instance only, however, was discovered in cases of that nature, and that, curiously enough, was a well-marked example. It was in a man aged forty-six, admitted three times, and on every occasion mitral stenosis was diagnosed. The last admission was under Dr. Pavy in 1879. At the post-mortem examination a large heart was found but no definite cause for hypertrophy discovered. The mitral orifice admitted three fingers. The absence of mitral stenosis struck the medical registrar—I think Dr. Mahomed—who heads the clinical report: "Presystolic bruit heard in this case, but no stenosis found." Although a presystolic murmur was noted in the above case of cardiac dilatation in which neither adherent pericardium nor disease of the aortic orifice existed, we are obliged to admit that it is a remarkable exception, and that there is virtually no evidence to prove that simple dilatation of the heart will give rise to a presystolic murmur. That being the case, we are driven to consider whether there is anything else in common between enlarged hearts due to disease of the aortic orifice and to adherent pericardium. Possibly in both the innervation may be affected. In the pericarditis that precedes adhesion of the pericardium it is difficult to understand how the nerves coursing superficially over the bloodvessels can entirely escape, and in cases where aortic regurgitation is due to aortitis, causing dilatation of the aortic orifice, the nerves passing downward in the sheath of the aorta may possibly be affected, as Lancereaux has long believed. In Case 1, for example, leucocytes scattered through the sheath of the aorta were often aggregated around the nerves, and although it was not evident that the nerves had materially suffered, toxines may have been present and have caused functional disturbance. In cases, however, where the rumbling apex murmur is associated with disease of the aortic valves and not of the aorta we can hardly suppose that any affection of the nerves is present, yet the frequency of cardiac pain suggests that in some obscure way the innervation of the heart is affected or that the heart muscle is functionally disturbed. The first case in which I heard a presystolic murmur that was proved to have been unassociated with mitral stenosis, the cardiac failure was of the nature that seems to me to point to disturbed innervation. In a boy aged nine, without œdema or liver enlargement, there was orthopnœa, great distress, and a rapidly acting heart beating with sufficient force to cause visible vibration of the whole body. On recently looking again at the microscopic sections of the heart muscle pathological features previously overlooked were noticed—viz., some proliferation of the endothelial cells of the pericardium and groups of leucocytes in the subserous tissue. In other words, the boy appears to have died in a very early stage of pericarditis. Since there is no evidence of myocarditis we may suppose that death occurred from functional disturbance of the nerves of the heart muscle or by toxines. Allowing that in some cases of presystolic murmur occurring without mitral stenosis there is a deranged nervous mechanism or some unusual alteration in muscular action, the question of the mode of production of the murmur still remains to be explained. Possibly there is a loss of muscular tone and vibrations of the muscle wall are set up by the inrush of blood on contraction of the auricle. But whatever the explanation of the murmur may be the fact remains that mitral stenosis is not the only heart lesion that will give rise to a presystolic murmur.

In closing, reference may be made to a case that Dr. Perry has kindly given me permission to mention. This case presents an additional feature of interest in that it bore resemblance to some cases of mitral stenosis in another particular. Of every four cardiac beats only two were felt at the wrist. The case was a woman aged twenty who was admitted under the care of Dr. Wooldridge

[1] THE LANCET, Sept. 15th, 1894.

in August, 1888. She had been seen by him as an out-patient, when a well-marked presystolic murmur and a soft systolic murmur were present at the apex. After admission, however, the presystolic murmur seems to have disappeared and a diastolic murmur was audible between the nipple and the sternum. In August, 1892, the patient was again admitted under the care of Dr. Perry. Over the mitral area a "rough rumbling presystolic murmur" was then heard, as well as one systolic and more blowing in character. A presystolic thrill was also present. As already mentioned, it was thought that only two pulsations were felt at the wrist to every four cardiac beats, and sphygmographic tracings seemed to support that view. The patient died.

The clinical clerk gives an abstract of the result of the post-mortem examination, after which he somewhat cautiously remarks: "The diagnosis of mitral constriction that was fairly confidently made in the ward was thus proved to be apparently a mistake." The heart was a peculiar one; it was large, weighing eighteen ounces. The apex was formed mainly by the right ventricle, which was greatly hypertrophied, the muscle wall measuring three-quarters of an inch in diameter. The tricuspid orifice measured five inches and the mitral three inches and three-quarters. The aortic valves were healthy, but the pulmonary had a few small vegetations upon them. The most curious feature was the marked atheroma of the pulmonary artery, which extended into its small branches. Apparently the hypertrophy and dilatation of the right ventricle were due to obstruction in this vessel.

The case affords fresh evidence of the possibility of the existence of a presystolic murmur apart from mitral stenosis, but apparently does not throw much light upon the production of such a murmur. In all probability the murmur was produced in the right ventricle, and the great thickness of the wall is worthy of note—a feature one would think must have been in some way connected with the production of the abnormal sound. Common though a dilated right ventricle is, a rumbling sound sufficiently loud to attract the attention of most observers is rarely heard in association with such dilatation. A previous suggestion has, however, been made—namely, that disturbed innervation enters into the etiology of these anomalous murmurs. Possibly the curious and extensive atheroma present in the pulmonary artery in this case followed an arteritis that had affected all the coats of the vessel and its sheath, leading to injury of some nerves of the cardiac plexus.

Since writing the above Dr. Audeoud of Geneva has kindly sent me his paper upon "Le Rétrécissement Mitral Fonctionnel." He has noticed diastolic and presystolic apex murmurs which have disappeared. Dr. Audeoud speaks of a functional stenosis which he considers to be due to temporary spasm of the mitral orifice. The results of necropsies in two cases are given. One of the cases resembles one under Dr. Perry above mentioned. In a man aged sixty-two in whom a diastolic apex murmur had been present nothing was found but a large heart. The mitral orifice admitted three fingers, and the valves were healthy.

NOTE ON "THE SURGICAL SIGNIFICANCE OF SMALL CALIBRE RIFLES."

BY BRIG.-SURG.-LT.-COL. W. F. STEVENSON, A.M.S.,
PROFESSOR OF MILITARY SURGERY, ARMY MEDICAL SCHOOL, NETLEY.

THREE very valuable and interesting articles on the above subject have recently appeared in the *United Service Gazette*.[1] They are based on a paper by Lieutenant H. R. Stiles, Assistant Surgeon, United States Army, which appeared recently in the journal of the Military Service Institution, New York, and presumably the views put forward in them are those held by that officer.

In the first article Lieutenant Stiles' opinion of the cause of the occurrence of those frightfully lacerated and destructive injuries produced by rifle bullets at short ranges, to which the term "explosive effects" is commonly applied, is stated. He considers that they are to be explained by what has been called by Continental surgeons the "hydraulic theory." Upholders of this theory of the production of these extensive injuries look upon a limb or a part of the body as a sealed vessel containing liquid, or an almost liquid substance, and consider that when it is penetrated by a projectile possessed of high velocity, the liquids of the tissues produce within it similar effects to those seen in a tin can filled with water or a moist substance, and sealed, under like circumstances. In the latter case the bullet produces, besides the entrance and exit holes, numerous ruptures in the sides and in the top and bottom of the vessel quite unconnected with the actual perforations due to the bullet itself. The edges of these rents in the metal are turned outwards, and it is evident that they are the result of some powerful agency acting from within other than direct impact of the bullet. Here, no doubt, the "hydraulic theory" is sufficient to account for what is found; the enormous additional pressure suddenly exerted by its fluid contents in all directions on the inner surfaces of the closed vessel causes ruptures to occur at the points of least resistance, and this pressure expends itself in all directions. Naturally, therefore, it is found that ruptures are as likely to occur on the entrance side as on any other, whereas "explosive effects" on living tissues are almost confined to the exit side of the part struck. To account for these injuries by the aid of this "theory" is to overlook the simpler explanation and to adopt the more complex one. If the sudden increase of pressure on the liquids of the part penetrated by the bullet were the cause of the great disorganisation found in these cases it should be expected that the destruction would be most marked up and down the limb—that is, on either side of the direction of the bullet track; but quite different conditions are always found. "Explosive effects" are very seldom seen except where bone is traversed by the bullet. Delorme states that they are very exceptional where soft parts alone are implicated, and both cases are open to the same explanation. When a rifle bullet produces these so-called "explosive effects" on living tissues the track it makes is somewhat funnel-shaped, and that portion of its course from the aperture of entrance to the near side of the bone represents the tube of the funnel and from that point to the exit side represents the expanded portion of the funnel. In its passage through the soft parts, where the resistance it meets with is but slight, it makes a track apparently of less diameter than its own; but from the point at which the bone is fractured, and where real opposition is first met with, splinters and fragments of the harder substance are driven forwards with enormous energy acquired from the projectile, and proportional to the amount which the latter has lost, and these, as well as the particles of the soft tissues and even of the fluids themselves, act as secondary missiles on all the parts in their immediate vicinity, causing destruction in ever increasing severity until the exit side is reached, where it is greatest. Fragments of bone are driven violently forwards, and escape at the exit wound or through the other rents in the skin made by their passage; muscles and tendons, nerves and vessels protrude from the exit wound, which itself may be almost of any dimensions, whilst the seat of fracture is quite cleared of fragments, showing considerable loss of substance between the broken ends. Splinters are also often found embedded in the muscles and other soft tissues at some considerable distance. The destructive effects of the bullet are seen to have been expended in a direction mostly corresponding with its forward motion, not upwards and downwards, and on the entrance as well as on the exit side, as would have been the case had they been due to hydraulic pressure, and as is seen to occur in the experiment on the tin can filled with water. In a word, the so-called "explosive effects" seen in rifle-bullet wounds produced at short ranges are due directly to the projectile and indirectly to the action of the particles of the tissues themselves (bones, soft parts, and liquids), which are driven forwards with great velocity, and possessed, therefore, of great energy and destructive power. This view is held by Sir Thomas Longmore.[2] In like manner, Delorme states that too much importance has for many years been attached to the hydraulic theory in this connexion; it does account, he says, for extensive injuries in the hollow viscera (bladder, stomach, intestine, heart); here it is indisputable: "but in the case of solid organs filled with liquids (brain, spleen, liver, kidneys) it is not the sole cause, because, for these latter, it is necessary to have great regard for the effect of the solid particles projected forwards. For the other soft tissues it has no importance whatever."[3] Paul Bruns has directed his attention

[1] Dec. 29th, 1894, and Jan. 5th and 12th, 1895.

[2] Gunshot Injuries, p. 127.

[3] Chirurgie de Guerre, vol. ii., p. 996.

to this matter and has made numerous experiments. He also, while upholding the "theory" to a great extent, makes the very similar remark that "until lately too much importance has been given to it." One of Bruns' conclusions is that "the destructive effects of hydraulic pressure on the human tissues are greater as the walls surrounding them are stronger." In cases of head injury by rifle bullets it is probable that the "theory" is sufficient to explain the numerous fractures found. When a bullet perforates the cranium the bony sutures are found to have been burst apart and fissures are seen extending in all directions, many of them being quite unconnected with the apertures of entrance and exit. The brain being practically a liquid, the skull is in this case in a similar condition to that of the experimental tin can, and precisely similar results are produced. This is well shown in a specimen lately presented to the museum of the Army Medical School, Netley, by Surgeon-Colonel R. V. Ash. A Lee-Mitford bullet, accidentally discharged, perforated a soldier's head at four yards range. Numerous and extended fissures, the great majority of which were not connected with either aperture, traversed the calvarium in all directions, and the sutures were separated. In this class of case the "hydraulic theory" is no doubt the correct explanation of the violent bursting apart of the bony covering of the almost liquid brain; but in all other cases "explosive effects" are due to the action of the particles of the tissues themselves propelled forwards as secondary missiles. Lieutenant Stiles states that "there must be moisture present to bring about explosive effects." Delorme, on the other hand, shows that this condition is not a necessity, for it is seen when a bullet at the highest rate of velocity is fired into such absolutely dry substances as a block of lead or a book; and Bruns points out that the greater the deformation a bullet is capable of undergoing in its passage through the tissues the more extensive are the explosive effects produced by it. He therefore concludes that as bullets with hard metal envelopes seldom deform against human tissues, so this severe class of injuries will be less often produced by the modern projectile than was the case when only soft leaden ones were used.

In the second article the differences which Lieutenant Stiles has observed in the wounds produced at various ranges by the new rifle about to be introduced into the United States army (one of 0·3 calibre) are detailed. His experience quite agrees with that obtained in this country and on the Continent with very similar weapons, and his record is a valuable addition to our previous knowledge of the subject. He alludes to the curious fact that, whereas the amount of injury produced in bone by small-calibre, hard-mantled bullets steadily decreases as the range increases (and the velocity and energy of the bullets lessen), up to 2000 yards, at distances beyond this range "the new bullet loses a little of its favourable character, and extensive fissuring and comminution again begin to appear." He suggests that the reason of this is that, as at these extreme ranges the bullet is travelling over the most inclined portion of its trajectory—as it is, in fact, falling more nearly perpendicularly—it strikes an object more obliquely and with more of its side, and therefore with a larger area of its surface; and again he says: "The ball has lost the greater part of its progressive velocity at these ranges, whilst its velocity of rotation is as great as ever; a torsional effect is thus produced by the ball, and increased splintering is thus brought about." The first of these two explanations for the unexpected increase of bone injuries at extreme ranges may be accepted as possible and even probable; but as regards the second this cannot be said. There is a direct and constant relation between the motions of translation and of rotation of rifle bullets—as the former is rapid or slow so is the latter. This must be so, for the velocity of rotation depends upon the speed at which the bullet travels up the barrel of the rifle. Both motions steadily decrease as the bullet travels along its course, and both probably cease at about the same time. The unexpended spin of the bullet when it lodges would be far more likely to cause comminution of bone at shorter ranges than at very extreme ones. But there is another explanation which may be considered, one which tends to show a greater probability of bullets striking objects at very long ranges with their sides—that is, with larger surface areas. It has been found that a modern rifle bullet, because of its great length as compared with its weight and diameter, commences to wabble towards the end of its flight, and has a motion comparable with that of a peg-top when its spin is nearly expended—that is, that its long axis rotates round a point somewhere behind its apex. The effect of this would, of course, be to permit it to strike an object with its side, and therefore with a larger surface of impact. This may possibly be considered as effective in producing an increase of splintering and comminution at long ranges, when the opposite condition might have been naturally expected, had not experience demonstrated its existence.

The "surgical significance" of the new rifle is summed up in the third article. "It [the modern bullet] produces clean-cut, slightly lacerated wounds of soft parts, exerts less explosive action, and splinters and displaces bones less (except at short ranges); its wounds offer the best possible conditions for rapid and perfect healing, being small, clean-cut, and aseptic as a rule, but they are prone to bleed freely and at once." These conclusions are very favourable to the new bullet from the humanitarian point of view, but it is an open question whether or not Lieutenant Stiles' account of the bone injuries produced by it, and detailed in the second article, bears them out. Undoubtedly simple wounds of the soft parts do heal rapidly; but in the others the damage from the extensive fissuring and comminution is most severe, and considerable actual experience will yet be required before we can know the value of Bruns' statement that "the new arm of small calibre is not only the best, but also the most humane, in that it lessens the horrors of war as far as possible." At the same time, it cannot be denied that our earlier conclusions on this subject, derived from experiments on horses made both in this country and in France, did give us exaggerated notions of the effects of small bullets on animal tissues. The extent and severity of a bullet injury are always in direct proportion to the resistance the missile meets with, so long as it has sufficient energy to overcome that resistance. In drawing conclusions from the experiments on horses the far greater strength of their bones over that of human bones was not properly allowed for, and experience has now shown that they were incorrect. Actual wounds on living men and experiments on dead bodies made by Lagarde in America and by others on the continent have proved this. Another class of experiments from which inaccurate ideas were formed was that of firing at human bodies at *fixed ranges* with *reduced charges*, the amount of powder in the cartridges being calculated so as to impart to the bullet the velocity it would have at any desired actual distance. M. Demosthen, an army surgeon, has made experiments with the new weapon of the Roumanian Army—a Mannlicher rifle of 6·5 mm. (about 0·26 in.) calibre, the bullet of which is composed of a core of hardened lead covered with a plated steel envelope, firing at human bodies at *actual ranges* with *full service charges*, and the results were different from those obtained by the other method. M. Demosthen's report was published and presented to the Paris Academy of Medicine in 1894. It contains much evidence that bone injuries produced by a small bore under the ordinary conditions of its use are more severe than those seen when reduced charges are had recourse to. Demosthen says that the shafts of long bones are fractured with much splintering and comminution, and this at long as well as short ranges, for he found but little difference in this matter between one humerus hit at 1400 metres and another at 100 metres; that the statements of Bruns, Habart, Seydel, and others that long bones may be expected to show clean-cut perforations without actual fracture at such distances as from 1000 to 1200 metres are not correct; that simple tunnelling of even the epiphyses of long bones is exceptional, and that he has never seen it occur at ranges under 600 metres; that in 65 cases of fracture of bones (human) of all sorts, at ranges of from 5 metres to 1400 metres, he has never seen simple perforation without fragmentation and splintering; and, finally that the clean-cut character of wounds in vessels is in favour of severe hæmorrhage even when only small arteries are injured. Demosthen does "not hesitate to admit his difficulty in agreeing with those who are disposed to accord a humane character to the modern projectile." "Wounds of the head, of the chest, of the abdomen, and of the long bones fail to bring into prominence this attribute in connexion with it." Another point, the importance of which must in future be acknowledged, is the impossibility of carrying out the regulations now existing in European armies regarding "first assistance" in the field. Under present arrangements (working so close to the fighting line) the medical *personnel* would themselves soon be in as great need of help and surgical treatment as those they went out to succour.

Speaking of wounds of the abdomen, Lieutenant Stiles remarks that these will be the most fatal ones produced by the modern bullet. No doubt they will be very fatal ones; but as experiment has shown that the perforations made by it in the intestines are similar to those made in the skin—small, clean-cut, and less in diameter than the bullet itself (about one-third of an inch)—they will on this account be all the more suitable for the only treatment which can offer any hope of success in cases where penetration is found to have occurred—viz., laparotomy with a view to suture of intestinal wounds and of controlling hæmorrhage, which in this situation shows peculiarly little tendency to cease spontaneously. Delorme points out that the minuteness of the intestinal perforations will be favourable to successful suture. Wounds of the lung also may be expected to show better results of treatment. In the late Chilian War, where a small-bore Mannlicher rifle was used, these gave a lower mortality rate than any previously observed. A comparison of statistics of the numbers of killed and wounded in battle when smooth-bore muskets were used with those experienced in later campaigns since rifles were invented might, at first sight, lead one to imagine that the more far-reaching and accurate the military weapons become the fewer will be the number of casualties which occur. The killed, wounded, and missing in the English army after Waterloo amounted to 23 per cent., while in many of the important fights during the war of 1870–71 this ratio came as low as 4 per cent. to 13 per cent. But Lieutenant Stiles rightly remarks on this question that trustworthy statistics of casualties in battle should in these days be based only on the ratios of killed and wounded to the numbers of those actually engaged and under fire. In former days, taking the whole strength of the armies as the basis, the calculation was accurate enough; but latterly this has not been the case, because the forces present have been so large that they were not all engaged, and the percentages of casualties have therefore been apparently smaller. Guessing at the probable numbers of killed and wounded in future wars is mere waste of time, but we may rely on the general truth of the statement that the proportion of casualties amongst those actually engaged will be greatly increased.

The articles in the *United Service Gazette* were probably written by a surgeon, and they would have been much more useful to our profession if they had appeared in a medical journal. They are able contributions to our present knowledge of an interesting subject about which little is known from actual experience. The strictly surgical matter in them is, for the most part, in agreement with the opinions of the best authorities of the day.

CASE OF ACUTE YELLOW ATROPHY OF THE LIVER.

BY C. H. GEOFFREY RAMSBOTTOM, M.B., CH.B. VICT.,
LATE SENIOR RESIDENT MEDICAL OFFICER TO ST. MARY'S HOSPITAL, MANCHESTER.

I RECENTLY had an interesting case of hepatic disease which appears to me to have been one of acute yellow atrophy of the liver, although I am sorry to say I could not gain permission to verify my diagnosis by a post-mortem examination. About a month ago the patient consulted me; he was a tall, slimly built man with a slight stoop, and sixty years of age. He presented rather a wasted appearance, his cheeks were hollow and his eyes sunken; he was of a despondent, timid temperament and altogether gave one the impression that he had a somewhat serious affection. He consulted me on account of some diarrhœa, pain after taking food, and flatulence; otherwise he stated he was well. There was no history of hæmatemesis or melæna, although he stated he had vomited some "green matter." Physical examination revealed nothing beyond his lean condition, a flatulent distension of the abdomen, and a slight hepatic enlargement. His pulse was rather slow and feeble, and he seemed generally debilitated. I considered that the above condition was due to dyspeptic troubles and treated him accordingly, and planned a dietary for him. In about five days he told me he was better and that he thought he would go to the seaside for a rest. A week or ten days elapsed, when he sent for me hurriedly one morning. I examined him again thoroughly, and found the liver on this occasion rather less than normal, and the stomach appeared to be somewhat dilated. His temperature was normal, the pulse 80 and weak, and the abdomen distended, but only with flatus. He complained of slight headache and drowsiness with slight pain in the hepatic region. His bowels were constipated. On the following day he vomited everything that was given to him. There was pain in the hepatic region upon pressure; he was restless and irritable. The temperature was 100·5° F. and his pulse 90. The tongue was dry and furred brown. The vomiting was eased on the following day only by peptonised milk diet; he was still constipated and slightly delirious at night; there was a slight tinge of jaundice. The temperature was 101° and the pulse 110. The stools were of a clay colour, mixed with a little blood. On the next day (the fourth of acute onset) the patient was decidedly weaker. The liver dulness had further diminished; and jaundice was fairly well marked. The temperature was 99·5°; the pulse still rapid, but feebler. He was in a semi-somnolent state and very delirious at night. On one occasion he jumped out of bed and dictated incoherent commands respecting Parliament, local boards, business, &c. A little ascites was now detectable and also some œdema of the legs. The urine contained a small quantity of blood, bile, and leucin and tyrosin. The patient gradually became weaker, refused all food except a little wine and beef-tea, and the last day or two had periods of a comatose state alternating with those of a low muttering delirium; on the morning of the eighth day from the acute onset he was in a comatose condition, with stertorous breathing and abdomen retracted, and died on that day. The liver dulness in the mammary line was about one inch and a half.

The above case seems to me to have been one of acute yellow atrophy of the liver, but there were never any convulsive twitchings or epileptiform convulsions. There were no petechial hæmorrhages under the skin, and the pulse was quick throughout; the jaundice was never so very well marked and there was no history of poisoning by phosphorus or arsenic. He had reasons for mental worry.

Granby-fields, Queensbury.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

DEFICIENT DEVELOPMENT OF AN UPPER EXTREMITY IN CONSEQUENCE OF PRESSURE EXERTED UPON THE AXILLARY VESSELS AND NERVES.

BY W. ARBUTHNOT LANE, M.S. LOND., F.R.C.S. ENG.,
ASSISTANT SURGEON TO GUY'S HOSPITAL AND THE HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET.

THE patient, a woman aged twenty-one years, had a number of exostoses about her body. These had apparently ceased to increase in size. Two bony growths were felt projecting from the inner aspect of the upper part of the shaft of each humerus, that on the right side being small and inconspicuous, while the one on the left side was long and prominent, and caused her so much discomfort and limitation of movement that she was desirous of having it removed. She was admitted into Guy's Hospital under my care. The piece of bone was narrow and elongated, measuring about one inch and a half in length. It was so placed that it carried the third part of the axillary vessels with the branches of the brachial plexus forward in advance of the position they normally occupy. Any moderate amount of pressure on the upper aspect of the growth controlled the circulation in the arm and caused a sensation of numbness and pain in it. It seemed that in some positions of the arm enough pressure was exerted upon the vessels and nerves to render the arm and hand cold and numb. This took place frequently when she was asleep. How much of this was due to pressure on the vessels and how much to pressure on the nerves I was unable to decide, but both structures appeared to suffer. Her arms were said to be of equal length up to eight years of age. She first noticed the presence of the exostosis on the left side at twelve years of

age, and since that period it had grown steadily and had caused her progressive pain and discomfort, both locally and by the disturbance of the circulation and innervation of the whole upper extremity. When she was sixteen years of age it was found that the left arm was shorter than the right by about an inch, and that it was also less developed muscularly. At the present time the difference in measurement is more than 1½ in. The measurement of the right arm from the acromion to the external condyle is 10½ in., while on the left side it is 9¾ in. From the external condyle to the styloid process of the ulna on the right side there is an interval of at least 8 in., and on the left side about 7⅞ in. The length of the right ring-finger is 3½ in., and of the left 2⅞ in. The circumferences of the right arm and forearm are respectively 9½ in. and 8 in., and of the left 9¼ in. and 7½ in. Though the power which could be exerted by the several muscles of the left arm was slighter than that possible on the right side, the deficiency was proportional to their difference in development, and to the fact of the affected arm being the left one. There was no evidence of any paralysis of the part.

St. Thomas's-street, S.E.

SEVERE VOMITING ACCOMPANIED BY TETANY.

BY GEORGE WALTER BARBER, M.R.C.S., L.R.C.P. LOND.,
SURGEON P. AND O. SERVICE.

I AM induced to send this account of the following case after reading in THE LANCET of Oct. 20th Dr. Soltau Fenwick's cases of tetany described by him at the London Clinical Society.

At Aden on Sept. 4th, 1894, a man came to me complaining of neuralgia in the temporal region (right). He had felt unwell during the last few days, and had had diarrhœa for two days, which he ascribed to the excessive heat of the Red Sea. This evening the diarrhœa became severe, with abdominal cramp, but was completely stopped by thirty grains of aromatic powder of chalk. On Sept. 5th the patient began to vomit, and this was accompanied by tetanic spasms lasting from five to ten minutes, affecting the abdominal recti, the upper extremities (the elbow being slightly flexed, the forearm adducted, the hands bent on the wrist, and the fingers flexed and pressed into the palms with the thumbs), and the lower extremities (the foot being extended on the leg and in a position of equino-varus, and the toes being flexed). These paroxysms occurred just before and during the vomiting of a little bile-stained fluid every fifteen minutes, and were attended with free perspiration. The face was cyanosed and the breathing hurried. The heart, lungs, abdominal viscera, optic discs, and patellar reflexes were normal. The urine was diminished and high coloured; there was no albumen or sugar. Effervescing mixtures with morphia and also a large dose of bromide were tried without avail, and nothing was retained on the stomach. On Sept. 6th the paroxysms continued, and the pulse was weak and irregular. Everything by the mouth was stopped, and I gave beef-tea and brandy enematas every four hours, and injected half a grain of morphia in two doses at intervals of two hours. The temperature was 101° F. The abdomen was painful and tender. On Sept. 7th the paroxysms occurred at intervals of an hour and were not so strong. The patient slept a little. The temperature was normal and remained so. A quarter of a grain of morphia was injected. On Sept. 8th the patient still vomited, but the spasms had stopped. The facial appearance and the pulse were better. An enema of soap, twice repeated, was followed by a copious, dark, fetid motion. Twenty grains of sulphonal powder were given to obtain sleep. On Sept. 9th the vomiting and spasms both stopped. A small amount of milk and soda was allowed every two hours. Twenty grains of sulphonal powder were given. After this the patient made an uninterrupted recovery with the exception of a crop of boils. On Sept. 15th he was allowed full diet and given tonics, and on Sept. 23rd he resumed duty. He has never had any symptoms of gastric ulcer and showed no signs of dilatation of the stomach, but had a very similar attack four years ago, lasting eight days, while voyaging between Calcutta and Aden.

Brindisi.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv. Proœmium.

LONDON HOSPITAL.

TWO CASES IN WHICH SMALL SUPPURATED OVARIAN CYSTS WERE EASILY ENUCLEATED AND REMOVED ENTIRE.

(Under the care of Dr. HERMAN.)

AT the present time with ordinary antiseptic precautions the operation of removal of simple ovarian cysts has become practically almost free from risk, but when suppuration has occurred in the cyst the danger from sepsis is much increased. The formation of extensive adhesions greatly interferes, as a rule, with the removal of the tumour, and the operation is thereby rendered exceedingly difficult. In the cases reported below, though suppuration had existed in the cysts for a lengthened period, in the first case probably for many years, it was found possible to shell out the cysts from their surrounding adhesions without rupture. The small size of the cysts may have contributed somewhat to the ease with which they were removed. The final result in each case was extremely satisfactory, and sufficient time has elapsed since the operation to enable us to feel sure that the cure is permanent. For the notes of the first case we are mainly indebted to Dr. H. G. Lys, formerly resident accoucheur.

CASE 1.—The patient was married on July 23rd, 1871, at the age of eighteen. She had had good health until her marriage. For the first six weeks after her marriage she was quite well, but did not menstruate. She then had violent shooting pain in the lower abdomen, which swelled; she vomited, and there was vaginal hæmorrhage lasting three or four weeks. She was then in the London Hospital, at first under one of the general physicians and then under the care of the late Dr. Head. The abdomen got smaller, hæmorrhage and vomiting ceased, and she left the hospital well. The records of this illness have not been preserved. After this she became pregnant, and was delivered of a living child on Jan. 26th, 1873, after an instrumental labour. She got up on the tenth day, but fainted, and had to go to bed again. She was in bed six weeks with what the medical man in attendance called "inflammation and low fever," its chief symptom being pain in the lower abdomen. She did not go out for three months. At the beginning of April, 1874, she was again seized with violent pain in the abdomen, which was tender, and in May she was again in the London Hospital under the care of Dr. Head. Notes were then made to the effect that there was a hard firm mass surrounding the uterus and fixing it, and that there was a profuse discharge from the os uteri, after which the uterus became more movable. The diagnosis then was "pelvic cellulitis." In February, 1876, she came back to the hospital, stating that she had been getting ill for six months, with wasting, pain in the lower abdomen, pain on defecation, and dyspareunia. She was admitted under the care of the late Dr. Palfrey. She went out only a little better, and then became an out-patient under the care of Dr. Herman. On Nov. 13th, 1876, a note was made that there was "a distinct tender mass to the left of the uterus." She attended for many months without much improvement. On Jan. 5th, 1880, she again came to the hospital, stating that in April, 1879, she had had another acute illness, keeping her in bed seven weeks. Since the illness in 1874 she had never menstruated without pain, and had been always in more or less pain. In 1885 she had another acute attack, laying her up for three months; but for this she did not come to the hospital. Soon after this she became a widow. In November, 1888, she fell down on her back, and this was followed by aggravation of her customary pelvic pain, which brought her to the hospital. She was admitted on Nov. 17th. On Nov. 20th it was noted that the uterus was fixed, that there was a hard lump to the left of it, and some thickening to the right. The possibility of cure by operation was now put before the patient by Dr. Herman, but she, thinking of the many years her ailment had lasted,

was unwilling to run any risk for a possible, but not certain, cure. She left the hospital on Dec. 18th, being somewhat better for her stay in it. Early in 1889 a prospect of re-marriage offered itself to her, and this brought her back to the hospital, anxious to have anything done which could put her in health. She was admitted on March 4th, 1889, and on March 8th Dr. Herman opened the abdomen. On passing the fingers down and tracing outwards the left uterine appendages, a piece of tissue was detached and brought up through the wound; it looked like a piece of cyst wall. Passing the fingers down again Dr. Herman was able to detach, lift out of its bed, and bring out a cyst the size of a large walnut. It was very tense and contained pus. There was no hæmorrhage. There was no disease of the Fallopian tubes appreciable by the fingers except thickening of the peritoneum over and around them. The patient recovered without any bad symptoms and went home well on March 27th. In January, 1895, it was noted that the patient had attended at the hospital from time to time since the operation to report her condition. She had been quite well ever since. She had remarried, but had had no sign of pregnancy. She had menstruated regularly and without pain. There was no dyspareunia. She had gained flesh, and her appearance was in striking contrast to her worn and emaciated aspect during the years of illness.

CASE 2.—A woman aged twenty-five was admitted into the London Hospital on April 3rd, 1889. She first menstruated at thirteen; the flow was moderate in quantity and from the beginning attended with pain. Since the age of eighteen the pain had been so bad as to lay her up for a day or two each month. For the last three or four years she had had fainting fits during the day of menstruation on which the pain was at its worst. For the last twelve months she had had pain in the inter-menstrual period as well as during menstruation. She was married at twenty. Dyspareunia had been present from the beginning, and for the last twelve months had been very severe. Six months previously to admission she had had a thick yellow discharge, which began a week after menstruation had ceased and lasted a fortnight, then getting better. Her appetite had been bad for twelve months; there had been nausea and often vomiting. She had lost flesh. She was anæmic, and complained of shortness of breath, pain in the chest, and cold hands and feet. She slept badly, being kept awake by the pain, which for the last five weeks had been continual and worse at night. On examination the vaginal portion of the cervix was found to be quite absent, the os externum being flush with the vaginal wall. The uterus was fixed by induration on each side of it. On the left side there was a distinct lump, extending from the uterus to the pelvic wall. The patient was much wasted. She was kept in bed, and laxatives and counter-irritation were employed; but after twenty-four days of this treatment the pain was not at all better, the lump was not smaller, and the patient's general condition was not improved. Therefore, on April 27th Dr. Herman opened the abdomen. The uterine appendages on both sides were found to be embedded in adhesions. The right ovary and tube were separated and removed. The tube was thickened and studded internally with warty growths. In attempting to free the uterine appendages on the left side a cyst about the size of a hen's egg was separated, being shelled out of its bed without difficulty and without hæmorrhage. It was brought out entire, and when cut open was found to contain thick pus. Nothing else was removed on this side. A drainage-tube was put in (Dr. Herman now thinks that this was unnecessary). The patient recovered without hindrance, except that the track of the drainage-tube continued to discharge for three months, when a ligature came away, after which the sinus healed. On this account she was longer than usual in the hospital, which she left on July 9th. She came back to report herself in April, 1890. She was fat, and had a good colour. She menstruated regularly, and had no pain either during or between menstruations. There was no dyspareunia. The patient remained in perfect health until January, 1892. She then began to suffer from great pain in the abdomen and back and down the left leg. She lost flesh and again became anæmic. She was readmitted on May 13th, 1892. Her aspect and behaviour showed that her pain was severe. The abdomen was tender. The uterus was fixed, and there was a swelling on each side of and behind the uterus. She was kept in bed, and medical treatment was used without any improvement either in the symptoms or general condition until June 7th, when an aspirator needle was put into the part of the tumour which closest approached the vagina; but no pus was extracted. She still did not improve, and on June 17th Dr. Herman again opened the abdomen. The bowels above the pelvic brim were found to be matted together by adhesions; and on separating these a collection of pus, thought to be in the broad ligament, was opened in front of and to the left of the uterus. This was emptied of pus and a drainage-tube put in. For about a month after this operation the patient improved. There was free discharge from the wound, the pain got better, and the patient gained flesh. Then, as the wound healed, she began again to complain of pain and to lose flesh, and the evening temperature to rise, ranging from 100° to 101·5° F. Cystitis developed, culminating in the passage by the urethra of a slough of the mucous membrane of the bladder on Aug. 18th. On Aug. 30th some pus was passed with the fæces. Pain, wasting, and slight fever continued although the cystitis got better, and as there was still a mass behind and on each side of the uterus, and pus from time to time came away with the fæces, Dr. Herman on Oct. 18th made a free incision with scissors through the vagina behind the cervix, and then with the fingers broke down the tissues so as to thoroughly open up the broad ligaments. No distinct cavity or large collection of pus was opened into. The cavity made was stuffed with iodoform gauze. This operation was followed by rapid improvement. The temperature afterwards did not exceed 100°. No more pus was passed by the bowel. The pain ceased. The patient gained flesh rapidly, and she was discharged well on Nov. 13th. She last reported herself at the end of 1894. She was then fat, florid, free from all pain, and considered herself as in all respects quite well.

Remarks by Dr. HERMAN.—These two cases are both alike in that in each there was a small suppurated cyst in the ovary, very loosely connected to its bed, and easily shelled out without hæmorrhage. This is an unusual form of ovarian suppuration, and they are the only cases of the kind that I have seen. In such cases as this the simplicity of the operation makes it not more dangerous than the removal of normal ovaries. The first case shows how very chronic suppuration in the ovary may be. There can be little doubt that the recurrent attacks of pelvic inflammation and the persistent pain between them were due to the continued presence during fifteen years of the disease discovered and removed by the operation—viz., an ovarian abscess. It is a gratifying illustration of the progress in our therapeutic power. At the time the patient was in the London Hospital, under Dr. Head and under Dr. Palfrey, chronic suppuration in the uterine appendages had never been either diagnosed with any certainty or cured, and in diagnosing this case as pelvic cellulitis, and treating it by expectant methods alone, these two physicians applied the knowledge of the time; but had our present knowledge been available this patient might have been cured then. It is to be regretted that many lists of operations on inflamed uterine appendages contain so little information as to the after-history of the patients. Ovarian suppuration is due to the entry of microbes: if these have got to the ovary by way of the tubes some may remain in the stumps of the tubes; if through the broad ligaments inflammation-producing matter may remain in them. It is known that in a certain proportion of cases pelvic inflammation recurs after inflamed tubes and ovaries have been removed. For this reason I did not immediately publish the above cases. In the second of them it seems to me probable that the ovarian cyst was infected through the cellular tissue in the broad ligament, and that the subsequent suppuration was a residual abscess. It is in such cases as this, in which the broad ligament is riddled with suppuration, that the Continental practice of removing the uterus (Péan), or the uterus and appendages (Leopold and Landau), seems to have some justification; but it seems to me to be possible, as in this case, to open up by the vagina and drain pelvic suppurated cavities, even when multilocular, without removing either the uterus or the ovaries.

BASINGSTOKE COTTAGE HOSPITAL.

A CASE OF LAPAROTOMY; REMARKS.

(Under the care of Dr. C. F. WEBB.)

WHEN, after the reduction of a hernia, symptoms suggestive of obstruction occur the treatment to be followed presents some difficulties. In the following case the symptoms were very indefinite; they never amounted to those of strangulation, a little nausea and slight distension being

all that could be observed; yet, though the constriction had apparently not yet become sufficient to cause much interference with the circulation in the herniated bowel, at the operation it was felt to be tense, and the peritoneal coat of the intestine had been damaged. The displacement of the testis was an interesting complication. The only operation admissible under the circumstances was a laparotomy, as thereby the bowel could be much more easily got at than by any incision over the site of the hernia.

A man aged forty years was engaged as a waiter on the evening of Oct. 31st, and while in the act of stretching across a table to lift a tray of glasses felt a sudden sharp pain in the left inguinal canal. He put down the tray and placed his hand on the spot, and found that an old hernia which had not protruded for several months had again come down. At once, in great haste, he, to use his own words, "squeezed it all up," which caused him considerable pain and slight faintness. He afterwards felt sick and went home. On arriving at his house the bowels acted freely for the second time that day, and while adjusting his dress he noticed that the left testicle was not in its usual position in the scrotum, nor could he feel it anywhere. He was first seen on Nov. 1st, and complained of bilious vomiting with nausea and some retching, not severe, and took only water. There was no meteorism, no collapse, no suppression of urine, and very trifling pain, with no local tenderness. The inguinal canal, which was large, easily admitted the finger, but no trace of the testicle could be found. On Nov. 2nd there were no fresh symptoms. There was very slight pain occasionally radiating towards the umbilicus. The patient had slept well. The urine was normal and in good quantity. On the 3rd there was very slight distension, no pain, no sickness, and no tenderness. The patient had passed no flatus since the evening of Oct. 31st, but said he felt very well. On the 4th he was free from pain, and slept soundly. The urine was normal, the pulse was good, the tongue was slightly furred, not dry, and there was no distension, and no sickness or nausea. On the 5th there was no sickness, pain, or tenderness, and rather more distension; the urine was normal, the pulse good, the patient was taking iced milk and complained of hunger. On the 6th there was no sickness, pain, or tenderness; the urine was normal and the pulse good, and the patient said he felt very well. On the 7th at 9 A.M. there was considerable nausea, but no vomiting or retching; the patient slept well, urine was passed in quantity, there was no pain, the pulse was good, and there was no tenderness. Dr. Webb here determined to wait no longer, but performed laparotomy. Accordingly, at 10 A.M., chloroform alone being administered and the catheter passed, the abdominal wall was carefully washed and afterwards swabbed with a perchloride of mercury solution (1 in 1000). An incision, commencing just below the umbilicus and carried downwards to the extent of three inches, was made in the mesial line down to the linea alba, all bleeding being arrested by torsion. The linea alba was divided on a director, and the peritoneum in the same manner. On passing into the wound two fingers of the left hand considerable matting of the intestines was found towards the left iliac fossa, and so firm was this that great difficulty was experienced in reaching the fossa. It being found necessary to introduce the whole hand, the wound was enlarged and the hand introduced, which encountered below the internal abdominal ring on the left side a large oviform swelling. On following the bowel towards this swelling it was found that the bowel was continued on into it, and on further examination a tight, tough stricture was found; this was divided, and from eight to ten inches of bowel were gently drawn out. On examining this portion of the bowel at the spot where the stricture had grasped it the peritoneal coat was found to be peeled off to the extent of an inch. A chromicised gut suture was put in to strengthen the bowel. On passing the fingers through the opening that had constricted the bowel the testicle was found below the internal abdominal ring, and was carefully replaced in the ring and gently passed down the inguinal canal to the scrotum. The wound was dressed in the usual way. The bowels acted naturally on the fourth day. The catheter had only to be used on the fifth and sixth days. Delirium was present on the seventh and eighth days. The bowels continuing to act once or twice a day, he made an uninterrupted recovery, and was convalescent on the twentieth day.

Remarks by Dr. WEBB.—This case is peculiar in that so long a portion of intestine was strictured with so very few bad symptoms, and that the force used in returning the hernia was so great that the bowel was burst through the hernial sac and the testicle pushed clear of the internal abdominal ring at one and the same time. It also illustrates well how useless it is to trust to even favourable symptoms when grave injury of some kind has happened to the bowels, and how important it is to explore as early as possible.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Annual General Meeting.

THE annual general meeting of this society was held on March 1st, the President, Mr. HUTCHINSON, being in the chair.

The report of the council was read. In order to increase the usefulness of the society the following changes in connexion with the method of accepting papers and publishing the Transactions have been adopted:—1. Papers accepted for reading are thereby accepted for publication, either in the Transactions or in the Proceedings, as may be determined by the council. 2. Papers will be printed before being read, and be obtainable (in proof) on application at the society's rooms. 3. Fellows may read their own papers. 4. The Transactions are to be published in three parts (in paper covers) during the year—viz., on Feb. 1st, May 1st, and Aug. 1st—as well as annually (bound as heretofore); and Fellows are free to choose in which form they will receive them. 5. Papers are to be issued separately for sale (by the society only) as early as possible after the issue of the part, at a price to be affixed to each. 6. Some of the ordinary meetings are to be devoted to discussions and demonstrations on special subjects, to be introduced by a short paper or papers by Fellows of the society, or others, at the request of the council.

The alterations in the by-laws rendered necessary by these changes were submitted for confirmation. The council trusted that these changes would be appreciated by the Fellows, and would attract a larger number of communications on subjects of immediate interest from authors who hitherto might have hesitated to present their work to the society in consequence of the lengthened period that had often elapsed between the reading and the publication of papers.

The honorary librarians reported that the library had never before been so largely used. A new supplement to the catalogue had been issued, which contained all the books added to the library during the year 1893, and also some donations of tracts and books which had been received during the building operations, and which it had been impossible to catalogue during that busy time. During the year 526 new books and pamphlets had been added to the library exclusive of the large number of volumes of periodicals. The first volume of the report of the Committee on Climatology and Balneology was in the press, and would shortly be published by Messrs. Macmillan. This volume included the medical climatology of the south coast of England and the Channel Islands and the more important mineral springs and baths of England and Scotland. It was proposed that a second portion of the report should deal with the climatology of the remainder of England and Wales and also of the minor spas.

The honorary treasurers reported that the finances of the society were in an improving and thoroughly satisfactory condition. The whole of the expenses incurred on account of building, altering, and moving into the present premises had now been paid off, with the exception of the small sum of £20, which had been retained as a guarantee for the due fulfilment of a contract. The roll of the society now contained the names of 503 resident Fellows, 279 non-resident Fellows, and 17 honorary Fellows.

The PRESIDENT then delivered his annual address. Alluding first to the late Sir Andrew Clark's scheme for the organisation of an Academy of Medicine, he said that his ambition for the society did not soar so high, and he thought that neither the smaller societies nor the Royal Medical and Chirurgical Society itself would be the gainers by the proposed amalgamation. It was also open to doubt whether it would be wise, as

wished by some, that the society should become a power in the State. He himself thought it would be better to leave questions of medical education and medico-legal problems to such bodies as the Royal Colleges, the General Medical Council, the British Medical Association, and the medical press. While he was glad to congratulate the society on their present position, which was more satisfactory than of old in spite of the greater expenditure, yet it could not be denied that there appeared to be a diminution of interest in the meetings. This was in part due to the springing up of new societies which had cultivated specialist topics and offered a specialist audience. In order to adapt the society to the changing conditions of the times the new regulations detailed above had been framed. Pre-arranged discussions on topics of interest would be held, the exhibition of patients and specimens encouraged, and the detailing of new facts would be hoped for quite as much as the expression of opinion and criticism. Certain topics of great general interest might thus come up which otherwise might not be brought forward in an original paper. Arrangements might possibly be made with sister institutions in other cities by which their members would, when visiting London, have an equal footing with the Fellows of the society. The President then proceeded to allude to the losses the society had sustained by death during the year. Two honorary Fellows had passed away—Hannover and von Helmholtz. Among the six ordinary Fellows were the names of Barnard Holt, an ingenious practical surgeon; of Octavius Sturges, whose works on pneumonia and chorea were classics; and of John Whitaker Hulke, whose varied powers, clear judgment, and uprightness of character caused him to be held in high estimation by his colleagues. The fact that many were taken from us before their full time should cause us to lay to heart the uncertainties by which we were surrounded, and so live our lives without hurry but without loitering, that if death cut short an unfinished career we should leave our wealth of knowledge on record, and thus what we had toiled to gain would not be lost to our heirs. In a literary sense those who had been mentioned had made their wills, and posterity would realise their generous bequests.

The following were elected to serve as officers during the ensuing year:—President: Jonathan Hutchinson, F.R.S. Vice-Presidents: Charles John Hare, M.D., John Harley, M.D., J. Warrington Haward, and John Langton. Honorary Treasurers: William Selby Church, M.D., and John Ashton Bostock, C.B. Honorary Secretaries: John Mitchell Bruce, M.D., and Robert W. Parker. Honorary Librarians: Samuel Jones Gee, M.D., and Rickman J. Godlee, M.S. Members of Council: Francis Charlewood Turner, M.D., Frederick Thomas Roberts, M.D., Frederick Taylor, M.D., Felix Semon, M.D., William Ewart, M.D., John Hammond Morgan, Arthur Edward J. Barker, Reginald Harrison, Frederick Treves, and Thomas FitzPatrick, M.D.

The usual votes of thanks to retiring officers closed the proceedings.

PATHOLOGICAL SOCIETY OF LONDON.

The Pathology of Diphtheria.

AN ordinary meeting of this society was held on March 5th, Dr. PAVY, President, being in the chair.

Dr. BERTRAM HUNT introduced a discussion by his paper on the Pathology of Diphtheria which we print in another place (p. 604).

Dr. HAYWARD had found hydrocele fluid a most useful nutrient medium for cultivating the diphtheria bacillus. He had first been led to adopt it on account of the difficulty in preparing good ox serum tubes free from the discolouration produced by diffused hæmoglobin, and to save the inconvenience of attending slaughter-houses and removing the collected serum, a proceeding which involved much waste of time and energy in the absence of skilled attendants, and when only small quantities were required from time to time. In preparing the fluid it was drawn off into a sterile flask and decanted into tubes, and these were subjected to a temperature of 55° C. for a period of three or four hours on three successive days, the tubes in the interval being kept in the warm chamber at 37° C. This method of fractional sterilisation had been found quite satisfactory. Finally, the tubes were placed on the slant in the hot air incubator and kept at a temperature of 68° or 69° C.; in a short time the fluid coagulated, forming a pale, greenish-yellow, almost transparent, and sufficiently firm medium. At a higher temperature the albumen was thrown down in white, flaky masses. The diphtheria bacillus grew readily on this solidified hydrocele fluid; small white colonies appeared within twenty-four hours; the maximum growth was attained in three or four days; the colonies were not so large as those grown on serum; the bacilli retained their characteristic form and virulence. The special advantage of hydrocele fluid rested in the fact that it was inimical to the growth of many of the organisms found in diphtheritic membrane, hence the labour of recognising the bacillus and obtaining pure subcultures was rendered easier. Streptococcus pyogenes grew on this medium, but staphylococcus albus and aureus had not been recognised, although growing abundantly on nutrient agar tubes inoculated from the same membrane. Not infrequently pure cultivations had been obtained directly from the membrane. Experiments were quoted to illustrate the relative growth of a mixture of diphtheria bacilli, streptococcus pyogenes, and staphylococcus respectively on hydrocele fluid, serum, and nutrient agar, and comment was made on the infrequency of suppuration after tapping for hydrocele in the days before aseptic surgery. Dr. White had greatly simplified and accelerated the preparation of the hydrocele fluid by a method which he described. (*Vide infra.*) As regarded its use it was claimed: 1. It was easy to obtain and prepare, and formed a clear, firm, solid nutrient medium. 2. The diphtheria bacillus grew readily upon it, and could be recognised within twenty-four hours. 3. It was inimical to the growth of many of the organisms found in diphtheritic membrane, and thus rendered a separation of the bacillus easier. On antitoxic horse serum, obtained by Dr. Klein's permission from the Brown Institute, it was found that the bacillus grew readily if tubes were prepared by Dr. Lorrain Smith's method, which involved sterilisation at a high temperature. If the serum was rendered solid by mixture with 2 per cent. agar, the temperature not being raised above 40° C., the bacillus grew very feebly, no definite colonies appearing in streak cultures within forty-eight hours; but both in the fluid and solidified antitoxic serum it remained active at least for three days (and subcultures were made which grew readily on other media). An experiment was quoted which appeared to show that the antitoxic serum retained its property of protecting guinea-pigs even when the serum had been inoculated with the bacillus and incubated for forty-eight hours. It was suggested from this that the antitoxin when injected in diphtheria could have little or no effect *per se* on the membrane or the bacillus; it must either neutralise directly the chemical products formed or by acting as a stimulus to the natural antagonistic forces at work render the best of all charitable aid in helping the tissues to help themselves. Remarks were also made on cases in which the bacilli had been detected in membrane occurring on the conjunctiva and in the stomach; on the clinical significance of different varieties of the bacillus and its association with other micro-organisms; and on the length of time during which its presence could be detected after disappearance of the membrane.

Dr. C. POWELL WHITE referred to the cultivation of bacillus diphtheriæ on hydrocele fluid. He said that in October last he undertook the bacterioscopic diagnosis of the cases of diphtheria admitted to St. Bartholomew's Hospital. Hearing from Dr. Hayward of the use of hydrocele fluid as a culture medium for the diphtheria bacillus, he, at Dr. Kanthack's suggestion, applied to it the method introduced by Dr. Lorrain Smith for solidifying blood serum, and published by him in 1894.[1] This method consisted in adding to the medium a certain proportion (for ox serum it was 0·1 to 0·15 per cent.) of caustic soda, and afterwards heating the tubes in a sloping position in the autoclave to a temperature of 120° C. for at least twenty minutes. After several trials he found that the amount of caustic soda to be added to the hydrocele fluid was about 0·07 (0·06 to 0·09) per cent. The exact amount must be determined for each specimen by trial tubes containing 10 c.c. each of the fluid. The caustic soda was used in the form of a 10 per cent. solution. The resulting medium was as clear as nutrient gelatine. On this medium the bacillus diphtheriæ grew better than any of the organisms usually associated with it. He had obtained a distinct growth after only seven hours' incubation. Streptococci grew on it, but much more slowly than the diphtheria

[1] Brit. Med. Jour., June 2nd, 1894.

bacillus. Staphylococcus aureus grew very slowly on this medium, and did not produce its yellow pigment. In order to separate the bacilli he inoculated one of these tubes directly from the false membrane. Examination eighteen to twenty hours afterwards revealed the presence of the diphtheria bacillus, often without any associated organisms. The advantages of this hydrocele fluid medium were—(1) it was (in hospital practice) easy to obtain; (2) it was perfectly transparent; and (3) it was especially suited for the separation of the diphtheria bacillus.

Dr. KANTHACK showed a specimen of Diphtheria Bacilli found in the alveoli of the lung in a case of diphtheritic broncho-pneumonia. He remarked on the rarity of finding the diphtheria bacillus so far down; for in the alveoli in these cases streptococci alone were usually found. Another specimen showed the presence of active phagocytosis in a guinea-pig which had been acutely infected with diphtheria. The guinea-pig died within twenty-four hours and nearly every leucocyte was found filled with diphtheria bacilli. This showed that phagocytosis was not the sole explanation of immunisation, though it was a phenomenon of it. If the animal body were able to neutralise the poison generated by the bacilli it would live, notwithstanding the presence of the bacilli themselves. In discussing these questions of immunity it was necessary not to generalise too much; the same process was not true of all diseases. He agreed with Dr. Hunt as to the specificity of the immunising serum. If the bacillus prodigiosus was itself injected into the peritoneal cavity immunisation not only against that bacillus but also against other organisms would be conferred. But if, on the other hand, instead of the bacillus itself the serum of the immune animal was injected, then immunity would be conferred only against the bacillus prodigiosus alone. From this it followed that it was not right to argue in the reverse direction. For instance, we could not say that because the serum of a patient recovered from cholera would immunise against a vibrio of cholera that therefore that vibrio was the cause of the disease. The serum of certain naturally immune animals could confer immunity on others. Metschnikoff had shown that it was easy to immunise against a living bacillus, but it was often difficult to immunise against its toxine: it was certainly not easy to immunise an animal against pure tetanus toxine, and it was extremely difficult to immunise an animal against pure cobra poison. From the animals inoculated with cobra poison he had not yet succeeded in obtaining an immunising serum, though it was stated that this had been obtained by others. The albumoses were first investigated in England by Hankin; the name tox-albumen was not a good one, because the albuminous or proteid matter could be removed from the poison—they should rather be called toxines or tox-albuminoids.

The debate was then adjourned till the next regular meeting of the society on March 19th.

CLINICAL SOCIETY OF LONDON.

Unusual Case of Diphtheria in the Air Passages.—Case of Malformation of Heart, with Hæmophilia.—Case of Gangrenous Umbilical Hernia; Successful Resection with use of Murphy's Button.—Hysterical Contracture of Legs.

AN ordinary meeting of this society was held on March 1st, Mr. LANGTON, Acting President, being in the chair.

Mr. LANGTON said that his presence in the chair indicated the loss the society had sustained by the death of Mr. Hulke, who was an original member. The late President, strong in individual personality and convictions, was a many-sided man and an able and successful worker in many branches of science. He was singularly wanting in self-interest. The profession had lost a cultivated and learned surgeon, the Clinical Society an able and wise President, science an ardent and enthusiastic worker, and the world a Christian gentleman actuated in all things by a high standard of duty. Mr. Langton added that he had been nominated by the council as senior surgical Vice-President to act for the remainder of Mr. Hulke's term of office.

Sir DYCE DUCKWORTH, in moving the subjoined resolution, recorded his own sense of the loss the profession had sustained by Mr. Hulke's death. The late President showed modesty combined with fearlessness; he had strong opinions, and had the courage of them when occasion required. The resolution, seconded by Dr. GLOVER, and carried *nem. con.*, was as follows:—"This meeting desires to record its sense of the great loss the Clinical Society of London has sustained by the death of its President, John Whitaker Hulke, F.R.S. One of its original members and serving on its first council, he helped to start the society on its successful course, and from its formation to the present time Mr. Hulke has taken a leading part in its scientific work. His fourteen papers in the Society's Transactions are of lasting value, and they testify to his keen critical faculty, great learning, and wide experience; while his many interventions in the discussions of the papers of others never failed to add greatly to the value and interest of the meetings. As President of the society he was uniformly courteous, sagacious, and unfailing in the prompt and punctual discharge of all his duties. In him the society has lost not only its President, but one of its chief supporters and most brilliant ornaments."

Dr. GOODALL read a paper on an unusual case of Diphtheria in the Air Passages. The patient was a boy aged four, who was admitted into the Eastern Hospital with faucial diphtheria. On the ninth day after admission he expectorated a cast of the trachea, and during the next week he brought up several casts of the trachea or bronchi and several shreds of membrane. There was albuminuria lasting for about a month. At the end of three weeks from admission paralysis of the palate, ciliary muscles, and lower extremities supervened. The boy recovered and left the hospital quite well at the end of another seven weeks. The point of interest in the case was that, in spite of the extensive formation of membrane in the trachea and large bronchi, there were never signs of laryngeal obstruction. Only during the expulsion of the largest casts was there dyspnœa. It was reasonable to suppose that in this case the larynx was unaffected. Three somewhat similar cases had come under his observation—a boy aged four, a girl aged four, and a young woman aged eighteen. All were in the first instance cases of faucial diphtheria. The young woman died, after having expectorated several casts of the trachea. There was no dyspnœa, and she apparently died from the severity of the disease. The Klebs-Löffler bacillus was found in the faucial exudation. The two children coughed up casts of the trachea, but had no symptoms of laryngeal obstruction. Both were subsequently paralysed and both recovered.—Mr. W. G. SPENCER said that the cases related were interesting in that they showed that cases of plastic bronchitis in children were identical in origin with diphtheria and ought to be classed as such. He remarked that it was unusual for a boy aged four to cough up shreds of membrane, and inquired if the Klebs-Löffler bacillus were found in the first case.—Dr. SIDNEY PHILLIPS said that occasionally cases were seen in which casts were coughed up with but few signs of obstruction, the latter symptom not being present because the casts were so loosely attached. In plastic bronchitis the casts could be seen to be laminated under the microscope and were quite different from diphtheritic membrane. The clinical course of plastic bronchitis was also different and the condition might continue for years.—Mr. SPENCER added that he was referring to some museum specimens of casts from children.—Sir DYCE DUCKWORTH said that plastic bronchitis was a disease attacking middle-aged or elderly people and could not be confounded with diphtheria. The casts of plastic bronchitis were difficult to find and required much searching for. They involved the smaller bronchi, and this explained the asthmatic symptoms and paroxysmal cough. He believed that plastic bronchitis did not occur in children at all.—Dr. SANSOM said that patients with plastic bronchitis frequently suffered from profuse hæmoptysis, which, in addition to the other symptoms mentioned, served to differentiate this disease from diphtheria.—Dr. GOODALL, in reply, said that he did not look for the bacillus in the first case, but it was followed by typical paralysis.

Dr. LEE DICKINSON recorded a case of Malformation of the Heart associated with Hæmophilia. The patient was a girl aged eight with pronounced congenital heart disease and hæmophilia, and Dr. Dickinson asked how far these diseases were related. He reviewed the opinions held in the early part of this century as to a developmental connexion between cyanosis and hæmophilia, and regretted the obsolescence into which they had fallen. A hæmorrhagic tendency had often been noted in cases of malformation of the heart, and was sometimes partly explainable by venous congestion or venosity of the blood; but in cases like the one brought forward, without either clubbing of the extremities or cyanosis, there was an unequivocal hæmorrhagic diathesis. Some degree of

malformation of the heart had been found in a few cases associated with hæmophilia, but apart from this the two diseases might be related in a developmental peculiarity of the blood. There were exact observations to show that the blood in congenital heart disease was in a state of concentration, especially as regarded the number of red corpuscles, which might explain its cyanosis; and there was reason to suppose that in hæmophilia the blood was in a somewhat similar state.—Dr. SANSOM questioned whether the case could be correctly called hæmophilia. The patient was a female child with signs of cardiac anomaly—probably a perforation of the inter-ventricular septum without pulmonary stenosis—and the hæmorrhage might be explained by the cardiac lesion. Cases of hæmophilia were very rare in the female, hæmophilia usually following the male line. The pathology of the affection was obscure, but in one case a condition of the arterial walls was observed which might be termed imperfect muscular adaptation.—Sir DYCE DUCKWORTH remarked that, though hæmophilia was much commoner in males, yet females might be the victims of it. He did not think that children with morbus cæruleus were more liable to bleed than others.—Dr. SIDNEY PHILLIPS inquired if any other members of the family suffered from hæmophilia.—Dr. DICKINSON, in reply, said that the cardiac condition was not severe enough to explain the hæmorrhages, for the child was never cyanosed. There was no family history of hæmophilia.

Mr. GILBERT BARLING (Birmingham) read notes of a case of Gangrenous Umbilical Hernia in which a successful result followed Resection with use of Murphy's Button. The patient, a female aged forty-nine years, was admitted to the Birmingham General Hospital four days after strangulation commenced. On the day of admission the symptoms ceased suddenly. The strangulation was caused by a severely constricting band which involved about five inches of small intestine, and the upper or entering portion was gangrenous at the point of constriction. The patient's general condition being good, the strangulated gut, with a V-shaped piece of mesentery, was removed, and the divided ends of the intestine approximated by a Murphy's button one inch in diameter. Recovery was uneventful, but the button was not passed until the twenty-fourth day, two days after the patient had been allowed to get up. It gripped a ring of necrosed gut.—Mr. PEARCE GOULD remarked that though the gut had been tightly strangulated for three days, yet it was not associated with signs of marked collapse. He asked if the pulse was soft, if the features were blue, the extremities cold, or if there was any distension of the abdomen. The occurrence of this condition at the umbilicus was more favourable than at the inguinal or femoral rings, for the gut could be more readily delivered and the necessary manipulations could be more easily performed. There was a great tendency for these artificial communications to become narrowed. He asked if there was any evidence that the indigestion which the patient had complained of could be due to the lodging of the button at the ileo-cæcal valve.—Mr. LANGTON admitted that certain disadvantages attached to the use of these buttons, but he had also seen stenosis after enterectomy when end-to-end approximation had been done and when Senn's plates had been used.—Mr. BARLING, in reply, said that the good condition of the patient accounted for the success of the operation. The difference in the results of these cases as recorded by different surgeons was perhaps partly due to a different appreciation of the term "gangrene of the gut," and then again patients reacted to infection in a widely different manner. There was no distension of the abdomen because the obstruction was high up. The indigestion occurred on the fourth day, before the button separated, and was due to the administration of food. Though these buttons had sometimes dallied in the intestine and had gone up the canal instead of down it, yet on the whole their use would probably be followed by a better result than other methods. The operation lasted fifty minutes, but most of this time was spent in ligaturing the numerous cut vessels in the mesentery.

Dr. HECTOR MACKENZIE detailed the notes of a case of Hysterical Contracture of the Legs. The patient, a young woman, had first come under his care at the age of twenty for symptoms which suggested gastric ulcer. She was at that time much emaciated, and suffered from gastric pain and vomiting. Some time after this she had some disappointment, lost power in her legs, and took to her bed; the legs soon became contracted, and remained so. When she came under treatment a second time the legs had been contracted for two years. She was now twenty-three years of age. Her emaciation was great; her weight was five stones. Under the deepest anæsthesia it was impossible to extend the legs on the thighs beyond a right angle; flexion could, however, be performed up to the normal limits. The flexor tendons were hard and rigid. The patient was depressed, and dwelt much on her troubles. There was marked anorexia. From the history, the mental and physical condition, and the character of the contracture, Dr. Mackenzie concluded that the case was hysterical in origin. It seemed likely, however, that structural changes in the flexor muscles had supervened, and it was at first doubtful whether it would be possible to straighten the legs without performing tenotomy. It was considered that the first thing to be done was to improve the general nutrition and to cure the morbid mental condition. The case was treated in the general ward of the hospital with massage and high feeding. Letters and the visits of friends were strictly forbidden. At the end of five weeks the patient had gained a stone in weight and was much more cheerful. She was soon made to get up and was encouraged to use her legs a little. The contracture gradually but surely gave way. At the end of nine weeks the legs were nearly straight, and the patient had gained two stones in weight. She was discharged at the end of thirteen weeks well able to walk, with her legs quite straight, her weight nearly three stones more than when she came in, and in a cheerful frame of mind. She had now for two years been perfectly well. Dr. Mackenzie said that although such cases were not very often seen in hospital practice it was possible they might be met with more commonly by general practitioners or in infirmaries. As they were generally considered incurable they were not very likely to be brought to a hospital. It was very satisfactory to know that in such a well-marked and long-standing case ordinary methods of treatment had proved sufficient to establish a complete cure.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases.

A CLINICAL MEETING of this society was held on March 1st, the President, Dr. R J. BANNING, being in the chair.

Mr. BALLANCE showed a woman aged fifty-six years on whom he had performed Cholecystotomy during an acute attack of gall-stone colic. Eighty-five gall-stones were removed, and the mucous membrane of the gall-bladder was found to be ulcerated. The gall-bladder was stitched to the skin and the patient made an uneventful recovery.—Mr. BIDWELL remarked that in most cases of cholecystotomy it was preferable to stitch the gall-bladder to the peritoneum and not to the skin.—Mr. BALLANCE also showed a boy aged fifteen years on whom he had operated for Cerebellar Abscess. The patient had suffered for nine years from otorrhœa and for five weeks from headache, staggering, vertigo, vomiting, and nystagmus. The temperature was subnormal. Operation was performed immediately after admission, and half an ounce of pus evacuated from the anterior part of the left lateral lobe of the cerebellum; blood-clot subsequently formed in the site of the abscess and caused a return of his symptoms, but on removal of this a complete recovery ensued.—Dr. ALDERSON remarked that the symptoms produced by cerebellar abscess were often quite indefinite and resembled those of typhoid fever or meningitis. He referred to a case which was diagnosed as typhoid fever, but at the post-mortem examination a cerebellar abscess was found.—Mr. Maidlow, Dr. Peghler, Mr. Eccles, and Mr. Lake also took part in the discussion.

Dr. BUCKLAND showed a case of a young man suffering from Progressive Muscular Atrophy, which was improving under electrical treatment. The muscles of the forearm and front of the legs were alone affected.—Dr. EDDOWES suggested that the case might be syphilitic in origin.

Mr. EDWARDS showed two cases of Fracture of the Patella which he had wired four and six weeks ago respectively. He operated by a lateral flap and hammered in the ends of the wire. The splint was removed at the end of a fortnight. The movement of the joint was excellent in each case.—Mr. ECCLES noticed that in both these cases the injury was due to a fall on the knee, and stated that transverse fractures with separation of the fragments followed much more often than was formerly supposed.—Mr. EDWARDS also showed a boy with Epispadias affecting the Glans and a portion of the

Corpora Cavernosa. He regarded the condition as congenital, but suitable for operation.—He also showed a Ruptured Kidney which he had removed from a man aged fifty-five years who had fallen on a spiked iron railing. The kidney had been transfixed by the spike and was ruptured completely. It was removed by a lumbar incision, and the patient was doing well.—Mr. KEETLEY referred to a case of laceration of the kidney where he had removed the lower half of the organ; the bleeding was controlled by packing the wound with sponges, which were removed on the day after the operation.

Dr. BALL showed a man aged forty who was suffering from Bradycardia. He had been under observation since December, during which time his pulse-rate varied between 26 and 30 per minute. At times a systolic murmur could be heard. The patient had enjoyed good health until one year ago, when he had influenza; he used to drink rather freely.—Dr. CHAPMAN considered that there was fatty degeneration of the heart.—Mr. Maidlow, Dr. Weber, and Mr. Lloyd also made remarks.

Dr. ABRAHAM showed a patient with a Tertiary Syphilide which suggested a mixture of syphilis and eczema seborrhœica. The itching was intense, and the eruption had an annular margin.—Messrs. Lloyd and Eccles discussed the case.

Dr. CHAPMAN showed a girl aged twelve years with Displacement of the Heart to a point three-quarters of an inch outside the right nipple. The right chest measured half an inch less than the left, and there was some spinal curvature. There was bronchial breathing on the right side. Dr. Chapman considered that the condition was the result of contraction of the lung from old fibroid disease.

Mr. KEETLEY showed a case of Primary Chancre of the Upper Lip in a girl aged eighteen. There were some enlarged glands, but no rash or sore-throat. The patient was improving under mercurial treatment.—Mr. KEETLEY also showed a woman aged fifty years who came under his care with Eczema of the Nipple and a Chronic Abscess in the Breast. The abscess was surrounded by cicatricial tissue, which resembled scirrhus; it was dissected out and the breast was now quite free from disease.

Mr. BIDWELL showed a girl aged nineteen suffering from Myxœdema, together with considerable enlargement of the hands. The enlargement was apparently due to repeated attacks of erythematous inflammation. Symptoms of myxœdema had existed for two years.

ÆSCULAPIAN SOCIETY OF LONDON.

The Action of Cardiac Tonics.—Diphtheria treated with Antitoxin.—Facial Paralysis.—Synopsis of 1000 Cases of Midwifery.

A MEETING of this society was held on Feb. 22nd, the President, Dr. A. G. BARTLEY, being in the chair.

Dr. A. K. CHRISTIE gave a brief summary of observations on the Action of Cardiac Tonics—namely: (1) digitalis, which caused a long systole by stimulating the cardiac muscular fibres, a long diastole by acting on the vagus, and vascular contraction by its effect on the vaso-motor centre—in spite of this triple action he considered it inferior to (2) strophanthus, which affected almost solely the cardiac muscle fibres, and was more persistent and more rapid in effect than digitalis; (3) convallaria, resembling strophanthus in action, and best given as an infusion, its most useful principle, convallamarin, being soluble in water, in which convallarin, a gastro-intestinal irritant, was insoluble; (4) caffeine, another of the same group as 2 and 3, was best used as a soluble salt (the sodio-salicylate)—its decided antagonism to morphia interfered very materially with its general utility. A series of sphygmograms illustrating this paper was shown at a former meeting of the society.

Mr. H. P. MILLER gave notes of a case of Diphtheria treated with Antitoxin in which Tracheotomy was performed. Three days after the disease was observed in the fauces the breathing became difficult, and on the fourth day 12 c.c. of antitoxin were injected. Next day tracheotomy was performed, and membrane was coughed up from below the opening. Later, 6 c.c. of antitoxin were injected, and next day (sixth day of disease) 6 c.c. more. The urine was albuminous. The tube was removed on the tenth day after operation. It was noted that this case, in spite of very insanitary surroundings, did exceptionally well and that the expectoration soon became fluid instead of membranous.

Mr. G. ELAM showed a case of Facial Paralysis apparently peripheral, and due to cold. There was no evidence of a central cause. Mercury with iodide of potassium, and electricity had been used, but with little or no effect.

Dr. J. W. HUNT gave a Synopsis of 1000 Cases of Midwifery. In these primiparæ numbered 289 (29 per cent.) arm presentations 4 per cent., breech ditto 2 per cent., and face, 3 per cent. The occiput was posterior to the last in 3 5 per cent. There were 4 cases of funis presentation, 1 of placenta prævia, and 1 of craniotomy. Post-partum hæmorrhage occurred in 6 cases. Forceps cases numbered 188. The head was high in 47, intermediate in 101, and low down in 40. The percentage of forceps cases was about 30 for primiparæ and 14 for multiparæ. Fœtal deaths amounted to 6 per cent. Dr. Hunt advocated the use of forceps in all cases of delay, and usually gave ergot (about two drachms) as a preliminary.—Dr. CHRISTIE considered ergot to be a much overrated drug. He had given one ounce without exciting uterine contraction.

CAMBRIDGE MEDICAL SOCIETY.

Antitoxin Treatment of Diphtheria.—Laryngeal Growths.

A MEETING of this society was held on Feb. 1st, the President, Professor CLIFFORD ALLBUTT, M.D., F.R.S., being in the chair.

Dr. LATHAM, after giving a short history of the serum treatment of diphtheria and describing the method by which Behring's antitoxin is prepared and the way in which the strength of the preparation is determined previously to its use, reported five cases which had been treated under his directions by the remedy. Two of the cases presented points of special interest, tracheotomy having been performed, the membranous exudations extending into the trachea and bronchi, and both patients recovering. A number of microscopical specimens and cultures from each of the cases were shown by Dr. COBBETT, John Lucas Walker Student of Pathology in the University.

Mr. WHERRY showed a lad who had suffered from aphonia and stridor, his breathing being seriously affected. Dr. Laurence Humphry, under whose care the boy was in Addenbrooke's Hospital, had discovered papillary growths obscuring the greater part of the vocal chords, and advised their removal. Mr. Wherry performed preliminary tracheotomy, and after a few days opened the larynx by median section of the thyroid cartilage. He removed a large quantity of papillomatous growths from the interior of the larynx and also from the region of the false chords. The growths bulged into the incision as soon as the thyroid cartilage was cut, and they were cleared away by Löwenberg's forceps and by sponging. No after application was needed. The case did very well and both voice and breathing were unimpaired.

LIVERPOOL MEDICAL INSTITUTION.

Mycosis Fungoides.—Pneumonia with Relapse.—An Unrecognised Danger in the Administration of Chloroform.—Course and Treatment of Acute Rheumatic Endocarditis.

A MEETING of this society was held on Feb. 28th, Mr. CHAUNCY PUZEY, President, being in the chair.

Dr. LESLIE ROBERTS read a paper on a case of Mycosis Fungoides. He pointed out that the symptoms in the early stage simulated eczema and other inflammatory eruptions, but were in reality neoplastic in nature. The tumours were infective, but there was no evidence at present of the action of micro-organisms. The necropsy showed the presence of tubercle bacilli in the left lung. The consideration of the histo-pathology of the disease was deferred to the pathological section of the society.

Dr. GLYNN related a case of Pneumonia with Relapse. He said that there was a great divergence of opinion as to the frequency with which relapse occurred, some authorities considering that a relapse was extremely rare, whilst others found it in from 15 to 25 per cent. of their cases. A man was admitted into the Royal Infirmary who had been ill three days; he convalesced on the tenth day, and remained well for eleven days; he then had a distinct relapse. The pneumonia was at both bases of the lungs. A very favourable point in the case was that the respiration never rose above 30 per minute; this showed that the rapidity of the breathing *did*

not depend altogether on the physical condition of the lungs, but probably on the presence of toxines circulating in the blood and affecting the respiratory centre. The first sign of improvement (which occurred a few days before the temperature dropped) was an increase in the quantity of urine secreted; Dr. Glynn considered that this was a most important sign of recovery. The case was treated by two drachms of infusion of digitalis given every two hours. Dr. Glynn considered this a most valuable remedy in pneumonia, and said that it would produce sleep and quiet the patient when other drugs failed to do so. It was stated, however, that cases treated with digitalis were liable to relapse.

Mr. C. G. LEE read a short paper descriptive of the Spasmodic Cough and Laryngeal Irritation that often occurs to the operator and his assistants when Chloroform is administered in an ill-ventilated room in proximity to a gas flame. The only record of such cases that he had been able to discover was to be found in a paper published in vol. xlii. of the *Practitioner* by Dr. Paterson of Cardiff. Here, however, the patient, as well as the surgeon, suffered from the violent cough and irritation, rendering it dangerous to proceed with the operation. In none of Mr. Lee's cases had the patient suffered. The exact nature of the irritating substance was discussed, and Dr. Paterson's view that it was probably carbon oxychloride or phosgene gas was favourably commented on; at the same time it might be due to free hydrochloric acid, as suggested by Dr. Carter. Several speakers pointed out that the same symptoms of irritation occurred when ether was administered in the neighbourhood of a coal-gas flame.

Dr. CATON read a paper on the Course and Treatment of Acute Rheumatic Endocarditis. Whilst treating 300 cases of acute and subacute rheumatism during the last thirteen years, he had observed the occurrence of 51 cases of valvular disease of the heart. The early signs of cardiac complications were described, and also the means employed to prevent them. Thirteen of the cases received no special treatment beyond that appropriate to the rheumatism and were kept in hospital on an average for twenty-five days. Of these, 12 left the hospital with a bruit and 1 without. Thirty-eight cases were treated by repeated blistering over the cardiac region and by the administration of potassium iodide. Treatment was continued for an average of forty-one days. Of this latter number 28 left the hospital without any bruit and 10 with a bruit.—Drs. Glynn, Barr, P. Davidson, and Logan discussed Dr. Caton's paper.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

Gall-stones successfully removed by Cholecystotomy.—Encysted Empyema.—Tuberculous Abscesses of the Liver.—Lymphoma of Eyelids.

A MEETING of this society was held on Feb. 15th, Mr. MAKEIG JONES being in the chair.

Dr. HELLIER showed eight Gall-stones successfully removed from a woman by Cholecystotomy. The case was interesting because there was present the condition which Riedel has described under the term "linguiform appendage of the liver." Before operation a movable solid tumour near the umbilicus had presented a diagnostic riddle which was only solved by exploratory incision.

Dr. CHURTON showed a case of Encysted Empyema on the Internal Surface of the Right Lung. The patient, a boy aged four years, in November, 1894, had diarrhœa for a fortnight; he then began to cough. On Jan. 5th, 1895, the usual signs of fluid were found in his right chest; he came into the Leeds Infirmary a week later; ten ounces of pus were obtained by incision. No improvement followed. On Jan. 29th the morning temperature was 100° F., evening 100·6°; pulse, 144; respiration, 40. There was no dulness over the right lung except near the heart (supposed to be the margin of unexpanded lung adherent to the chest wall); no breath sounds in it. Bronchial râles were heard in both lobes of the left lung; variable dulness at base in axilla; the presence of fluid was doubtful; on exploration none was found. The heart was in the normal site, with perfectly normal sounds. There were signs of pericarditis with effusion. At the necropsy, four days later, upon removal of the sternum pus flowed from an accidental incision in what at first seemed to be the pericardium, but this membrane was found to be perfectly healthy internally; externally it formed part of the sac of an empyema containing about an ounce and a half of pus, the opposite wall being the inner face of the right lung. The base of the lung was rather strongly adherent to the diaphragm. In the left lung there was bronchitis with a few red pneumonic patches, and there was a layer of semi-purulent exudation on the lower part of both lobes (outer aspect). Suppurative peritonitis (recent) and caseous mesenteric glands were also found. The superficial dulness presented by the internal empyema during life did not much exceed half an inch; the coexisting diseases in the abdomen and opposite lung prevented this sign from receiving sufficient attention. The cavity of the external empyema was smooth and contracting.

Dr. CHURTON showed a Liver in which there were Abscesses of various sizes, from a pea to a small orange. The large cavities contained pus, with shreds and bands of necrosing tissue. The patient, a woman aged thirty-six, had had a cough for two years, with little expectoration. During the last six months she had passed several gall-stones, with pain and transient jaundice; the last attack occurred two months before death. During life the liver was somewhat enlarged and the edge rounded; there had been no jaundice recently. Tuberculous fibrosis was found in the upper lobes of the lungs, and miliary tubercles in the lower lobes. There were no intestinal ulcers; three or four small, hard, calcareous glands were found in the mesentery. The gall cyst was small; there were no calculi. Mr. Stott, pathological curator, found tubercle bacilli in pus from the liver.

Dr. ADOLPH BRONNER showed a microscopic specimen of Lymphoma of the Eyelid. Seven years ago an oblong elastic growth (1½ in. by ½ in.) was removed from the left lower eyelid. There was no recurrence for three years; then all four eyelids, right hard palate, and right submaxillary gland became affected. The internal use of arsenic reduced the growths, but as soon as the arsenic was discontinued they increased in size. Slightly similar cases had been recorded by Goldzieher, but these were lymph-adenomata and unilateral. The case, with photograph, was described in the Transactions of the Eighth International Ophthalmological Congress.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.—Chronic Stricture of the Urethra.

A MEETING of this society was held on Feb. 14th, Mr. RICHARD FAVELL, Vice-President, being in the chair.

Mr. ATKIN showed a girl from whom he had removed the Shaft of the Ulna for Necrosis without Suppuration.

Mr. PYE-SMITH showed three boys on whom he had recently performed Excision of the Hip by Anterior Incision, and advocated this operation as giving better results than that of external incision.

Dr. MARTIN showed: (1) an Ovarian Cyst and Cystic Ovary from a patient twenty-four years of age; (2) an Ovarian Cyst with a Twisted Pedicle from a patient thirty-four years of age; and (3) a large Fibroid measuring 12½ in. by 11¾ in., which he had removed from the vagina of a patient aged fifty. All the patients made good recoveries.

Mr. KILHAM read notes of: (1) Accidental Vaccination by bathing a small wound on the cheek of a boy three years of age with a sponge which had just been used to wash the arm of an infant vaccinated on the previous day; (2) unusually large Child stillborn; weight 17½ lb., length 25 in., and with the arms to the sides 11 in. across the shoulders; and (3) a curious Bicycle Accident, causing Rupture of the Urethra without any skin wound.

Mr. W. H. BROWN (Leeds) read a paper on Some Points in the Treatment of Chronic Stricture of the Urethra. In the presence of cystitis in at all a severe form or with an abnormally sensitive urethra he considered the treatment by dilatation, either rapid or gradual, decidedly dangerous. Internal urethrotomy he condemned, but external urethrotomy on the lines laid down by Mr. Wheelhouse he regarded as a safe and efficient method of dealing with chronic stricture. One advantage of this operation was that it afforded the operator an opportunity of exploring the bladder, which in one of his own cases led to the discovery of two unsuspected

calculi. It also provided for efficient drainage of the bladder subsequently, which no other plan of treatment did. Mr. Brown said that he always varied Mr. Wheelhouse's method of procedure by the insertion of a perineal tube into the bladder, allowing it to remain there for four or five days; and in bad cases he washed the bladder out with solution of quinine. With regard to the risk of serious hæmorrhage, which had been alleged as an objection to this operation, he said he had only once met with any trouble from this cause, and he had never known suppression of urine to follow external urethrotomy, as had been the case after dilatation several times in his experience. In conclusion, he strongly deprecated undertaking such an operation as external urethrotomy without at least three assistants—in fact, with as many assistants as would be present if the operation were performed in a hospital.—The Vice-President, Dr. Keeling, Mr. Pye-Smith, Dr. Sinclair White, Mr. Atkin, and Mr. Snell joined in the discussion which followed.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

The Adjourned Discussion on Cardiac Therapeutics.

THE adjourned meeting of this society for the conclusion of the discussion of Cardiac Therapeutics was held on Feb. 26th, Dr. CLOUSTON, President, being in the chair.

Dr. G. A. GIBSON wished to speak of the relief of cardiac pain, which was a subject of the highest importance, especially in the senile heart. He could draw no hard line between the different forms of cardiac pain. The pain was a central discharging lesion. It was usually connected with some area of hyperæthesia. The pain of "impending sense of dissolution" was not specially cardiac, but seen in ovarian and other abdominal lesions. He agreed with Dr. Balfour when he said there was no angina without cardiac failure of some sort. The vaso-motor form would not hold water. To relieve the pain the nutrition of the circulation and primarily that of the heart must be improved. As drugs we must give the first place to the iodides, especially iodide of potassium. Iodide of ethyl was considerably more active, less evanescent in its action, and more certain than nitrite of amyl. The nitrites were more useful in asthmatic than cardiac conditions. Of other drugs, opium was a sheet-anchor in painful conditions in old people, and if used with ordinary precautions there was really no risk. The diathesis of the patient must be considered. In gouty people alkalies and colchicum were of use. Cardiac pain signified cardiac failure. He doubted if anæmia of the cardiac muscle could produce them, or neuralgia, or neuritis. Probably they were due to local irritation of sensory nerves. He dwelt on the usefulness of distilled water as a drink in senile cases.

Dr. ALEXANDER JAMES expressed some doubts which he had in the treatment of cardiac cases. Were we really husbanding the strength of the heart when we reduced its rate and increased the blood pressure with drugs? Did we not give the heart more work to do? Did our fathers not rather husband the strength of the heart in the early stages of the disease by lowering the blood pressure by means of antimony, venesection, &c. Again, could we not do more good by getting the patient to sleep instead of giving tonics? During sleep the heart got slower.

Dr. GEORGE BALFOUR desired to make some supplementary remarks on the present question, rather than discuss the merits of certain drugs. Exercise he thought only applicable in the early stage of gouty heart. Excessive exertion tended to promote irremediable failure of the heart. In young people especially the nutrition of the skeletal muscles could be promoted by massage. He next glanced at the diet of a cardiac case, which he regarded as of very great importance. Of the drugs employed in cardiac cases nux vomica was of value in all cases where the cardiac energy was defective, and could be continued for a long time. Five minims of the liquor strychniæ every twelve hours were a dose which did not produce cumulative effects, but marked and steady improvement due to the energising of the heart muscle, the cardiac ganglia, as well as the vaso-motor centre. Arsenic was also a valuable tonic; though it was difficult to understand how it acted there could be no doubt as to the benefit resulting. Of all cardiac tonics, digitalis was paramount. It was an indigenous drug of the highest value, which gave its name to a whole group of remedies of similar action, of which only one came within measurable distance in the possession of valuable qualities—namely, strophanthus. The active principle of strophanthus was soluble, it acted with great rapidity, and so might occasionally be used with advantage in cases of cardiac collapse. The defect of strophanthus was that though it forced the heart to contract it had no tonic action on it, and did not promote the nutrition, which digitalis did. This was a special disadvantage in cases of senile heart. Digitalis produced the desired action on the heart with certainty and without risk. Digitalis might be given—(1) to improve the nutrition of the myocardium and so augment the force of its contractions; (2) to contract dilated ventricles; and (3) to remove dropsy. In using it as a tonic saturation must be avoided; thus a grain of powdered leaves or the equivalent might be given in twenty-four hours. This might be continued for months or years. In flabby or dilated heart larger doses might be used to contract the organ. In aortic disease where the ventricle was beginning to fail large doses at considerable intervals were required. For removal of dropsy a degree of saturation was required. When blood pressure was high purgatives were of the greatest use. In lowering blood pressure for a lengthened period without bad effect iodide of potassium was best, and was most useful in combination with digitalis. Referring to the statement that there was not always high blood pressure in angina, Dr. Balfour said he had at one time held that view, but he was now satisfied that there was always an initial rise, though it rapidly fell from the failure of the heart to keep the pressure up. In conclusion he glanced at the use of narcotics in cardiac cases.

Professor FRASER, replying, said that it had not been his intention in the remarks with which he opened the discussion to specially emphasise the merits of any one remedy, but to demonstrate the remarkable therapeutic value of a pharmacological group, which he illustrated in connexion with one member because his experience with it had been greater than with any other member. This group of remedies had a direct action on the muscle of the heart, increasing the strength and efficiency of the contractions with a power unequalled by any other remedies. Time alone had prevented him making more than incidental mention of secondary remedies, such as rest, diet, arsenic, nitrites, morphia, strychnine, measures for removing fluids and increasing elimination, &c. In conclusion, Professor Fraser, after ably and impartially reviewing the expressions of opinion of those who had joined in the debate, expressed his great gratification at the amount of interest the discussion of this important question had raised.

Reviews and Notices of Books.

Meteorology: Practical and Applied. By JOHN WILLIAM MOORE, B.A., M.D., F.R.C.P.Irel. London: F. J. Rebman. 1894.

DR. MOORE was so recently before the profession as the author of an important work on Fevers that it is something of a surprise to find him so soon again in the field with a volume upon Meteorology. But, as he informs us in his preface and as is well known, he has long taken an interest in questions of weather and climate, and these subjects have afforded him "the needful foil to his more serious professional studies and pursuits." Hence he enters this new field not as a mere amateur, but "has been able to bring no small practical experience of meteorology to bear in the writing of the following pages." Dr. Moore holds, and we think with justice, that the practical physician, although subject to numerous distractions which impede the systematic pursuit of pure scientific work, has many advantages in approaching the problems of climatology. "The physician, of all men, has the fullest opportunities of observing the far-reaching influence of weather and climate upon human health, happiness, and longevity." Our readers do not need to be reminded that a careful study of the weather and seasons, and the doctrine of "epidemic constitutions" founded on this study were

cardinal features in the system of Hippocrates. The present work has not much pretention to originality of fact or theory; but may be taken as a full, lucid, and satisfactory exposition of the present state of knowledge regarding the subject of which it treats. Dr. Moore does not presuppose much knowledge on the part of his readers and does not disdain to enter into minute details on the elementary laws of physics, the different kinds of thermometer, the history and principles of the barometer, and such like. Many of such details would, perhaps, be more proper to a school manual on physical geography than to a formal work on meteorology addressed to the medical profession; but, on the other hand, there is something to be said for the author making his ground secure as he goes along. We think it was Faraday who was once asked to explain the wonderful success of his popular lectures at the Royal Institution, and, in particular, how he was able to assume the amount of knowledge possessed by his auditors. His reply was that "the only safe course was to assume that they knew nothing." Dr. Moore acts upon this principle and does not credit his readers with even an elementary knowledge of meteorology. After a general account of the scope and aim of meteorology and the properties and composition of the atmosphere, the author proceeds to give a very full account of the various methods of practical weather observation adopted at the chief British and American meteorological stations. There is much in this part of the work that is interesting, and the facts will be new to many readers; but it is with some sense of disproportion that we find forty-five pages in a work of a little over 400 pages devoted to a minute description of the history, organisation, and work of the United States Weather Bureau. To take one instance of what seems to us superfluous material, the English reader can hardly be expected to take a deep interest in the number of books and pamphlets added to the li r of the Washington Weather Bureau from its foundation down to 1893. Yet these facts are set forth in fullest detail, and we are further informed: "In addition to these various sections of the Bureau there is a large mass of correspondence to be cared for. This comes under the direct cognisance of the chief clerk, who has a small staff of clerks under him to perform this work. The letters received are assigned to the various divisions or individuals most competent to answer them. The replies are drawn up by these divisions or individuals with the aid of stenographers &c." Padding of this kind might profitably disappear from a second edition. We cannot leave this part of the work without expressing our admiration for the thoroughness with which the task of recording meteorological phenomena is discharged by our contemporaries in America. They have special advantages for the organisation of a complete and efficient national system of weather observation, and it is only just to acknowledge that these advantages have been utilised in a highly satisfactory and creditable manner.

After a full exposition of the general facts relating to such subjects as atmospheric pressure, the aqueous vapour of the atmosphere, winds and wind gauges, and atmospheric electricity, Dr. Moore proceeds in Part III. of his work to consider some of the general problems of climate and in more detail the climate of the British Islands. The factors of climate are stated to be the following: latitude, altitude, relative distribution of land and water, presence of ocean currents, proximity of mountain ranges, soil, vegetation, rainfall, and prevailing winds. The author's description of the winter climate of the British Islands is worth quoting. "During the earlier winter months a great stream of warm, very moist air, as a rule, flows north-eastward and northward over these islands round the Atlantic depression, the centre of which lies near Iceland. But this stream does not flow evenly. Along its eastern edge it is in continual conflict with the cold anticyclonic air which is travelling westward from Russia and Siberia, and immense volumes of the latter are frequently rushing in to supply the place of those volumes of the warm air which, owing to their low density, have presumably risen from the earth's surface towards the higher strata of the atmosphere. This conflict between two such opposite currents of air causes our storms and those violent and rapid alternations of temperature which are so prejudicial to health in the winter months."

The fourth and concluding portion of Dr. Moore's work is devoted to the influence of season and weather on disease. No attempt is made to deal exhaustively with this large subject, but the leading facts are marshalled in a clear and interesting way. The chief points emphasised are that influenza is absolutely independent of season and weather, that cholera tends to prevail in the warmer months of the year, that diarrhœal diseases belong to summer and autumn, that enteric fever is most prevalent in autumn and early winter, that typhus fever is a disease of winter and spring, small-pox belongs also to these seasons, that measles is most prevalent in the spring and autumnal quarters of the year, and that scarlet fever, though little dependent on climatic causes, tends to increase in the fourth quarter of the year. As regards pneumonia Dr. Moore draws a distinction between ordinary pneumonia and "pythogenic" pneumonia, the former being specially prevalent during a continuance of cold, dry weather, with high winds and extreme variations of temperature, while the latter reaches its maximum during tolerably warm weather, accompanied with a dry air, deficient rainfall, hot sun, and rapid evaporation. With this disease the writer ends, though it cannot be said that the subject was worked out; but he would be the first to disclaim completeness for a work which proceeds, on the whole, upon elementary lines. We may say, in conclusion, that the work is well printed and handsomely illustrated.

Transactions of the Pathological Society of London. Vol. XLV. London: Smith, Elder, and Co. 1895.

ALTHOUGH less bulky than many of the preceding volumes of these invaluable Transactions—which form a rich storehouse of pathological facts that has been often drawn upon by authors in all parts of the world,—nevertheless, the forty-fifth volume contains many valuable contributions to knowledge. Dr. Tooth records the results of his examination of the nerve trunks in a case of alcoholic paralysis, important from the examination having been made in an early stage of the disease and from the lesions being degenerative rather than inflammatory. Dr. Semon and Mr. Shattock record the sequel to a case of "anomalous tumour of the larynx," first brought forward three years previously. The interest of the case lies in the growth being proved to be of malignant nature, although clinically the case did not run the course of malignant disease. The somewhat rare condition of diphtheria of the stomach is described by Dr. W. S. Fenwick, the case lacking, however, a bacteriological examination and being remarkable from the freedom of the pharynx and œsophagus from exudation. Two cases of general ulcerative colitis by Dr. Tooth are illustrated by excellent photographs, recalling those in the late Dr. J. J. Woodward's memoirs on the intestinal affections observed in the American War of the Rebellion. Dr. Newton Pitt shows how abberrant renal vessels may cause hydronephrosis; and Mr. Shattock describes some new facts in the anatomy of epispadias and extroversio vesicæ. Some specimens of bone disease described by Mr. Clutton (syphilitic osteitis) and Mr. Davies-Colley (syphilitic disease of the knee-joint) are admirably shown in photographs; indeed, almost all of the plates are of the photo-lithographic order. There are several contributions to the subject of Rodent Ulcer, notably an analysis of sixty-six cases by Mr. Bowlby and a detailed histological report by Mr. F. T. Paul. The

subject of mammary carcinoma is studied by Mr. Cecil F. Beadles; but the question of sporozoa and cancer, which barely a year since was a burning one, seems to have received but scant attention during the last session of the society.

MAGAZINES FOR MARCH.

Westminster Review.—The current monthly number contains several articles of considerable interest and is not quite so strictly instructive without being recreative as usual. In the anny of the Modern Novel we have a decidedly bright and entertaining article and one that has a distinct interest for all medical men. It is no use blinking the fact that the majority of our better-class patients nowadays depend on their fiction for much of their knowledge and most of their estimates of personal theories and things, so that it is not an unusual thing for the medical man to find himself face to face with a case where many of the symptoms and possibly many of the evil practices that have determined the symptoms or the condition are directly or indirectly dependent upon the patient's taste in fiction. Mr. Hannigan's very short paper advocates chiefly the abolition of the controversial novel, and winds up with the dictum that Mr. Thomas Hardy is the only English novelist who never forgets his true vocation "to write a natural story of human life." Now, although Mr. Thomas Hardy displays none of the repulsive realism of Zola or Serao and is free from the nastiness of what may be termed "the yellow school," he has more than once introduced episodes into his books which cannot have been calculated to do the greatest good to the greatest number by giving them the healthiest pleasure. We do not enter into the wider question of whether this is the legitimate aim of fiction, rather than what Mr. Hannigan considers the novelist's vocation; we speak only for medical men when we say that the tyranny of the modern novel is certainly excessive, and that Mr. Thomas Hardy is not the most pleasing exponent of English manners. In the same magazine there is an able defence of modern private asylums, which in view of the serious charges about to be investigated at one of the best known of these institutions, and in view also of the sensational recrudescence of attacks upon institutions for the insane, makes very appropriate reading.

The *Contemporary Review* contains a paper of particular interest to us all in a quasi-defence of the late County Council in respect to the music-halls from the well-instructed and vigorous pen of Mr. William Archer. It would appear from a careful study of the results of the County Council election that the Moderate party do not owe their success to any popular resentment of the action of the Council in the Empire case, and so far it would seem that the "shriek of indignation and terror" which "went up to high heaven from a thousand journalistic throats" (Mr. Archer's expression) has had exceedingly little influence upon lower earth as represented by the London voter. But none the less the question of the position of municipal bodies as moral guides is a particularly interesting one at the present juncture.

The *English Illustrated Magazine* contains, amidst a wealth of short stories by popular authors, an interesting account of the foundation of Messrs. Bass's Brewery. The whole article is interesting from the popular point of view, and we wonder how many people believe that the water of the Trent plays an important part in the production of Burton ale. As a matter of fact, it is only used for washing the casks and similar purposes, while the water which is made into beer is drawn from wells varying from 20 to 130 feet in depth deriving their supply from the springs in the hills on the other side of the valley.

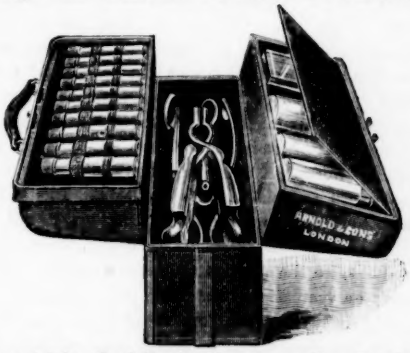
The *Pall Mall Magazine*, like the *English Illustrated*, is largely given over to fiction, and very well chosen and brightly written fiction too. But among the serious articles there is a paper by Mr. W. H. Mallock which we recommend to the attention of our readers. Mr. Mallock is one of the few people who can write upon political economy and make the subject readable and even piquant, and students of his novels know this. In this article, cleverly adorned with illustrative diagrams, he makes clear the condition of the people in respect to the census in a very remarkable manner.

The *Humanitarian* has a short article from the pen of Mr. W. S. Caine, M.P., upon the Gothenburg Liquor System, which should go far to damp the ardour of enthusiasts for that system.

New Inventions.

"COMPACTUM" MIDWIFERY BAG.

THE above illustration shows a very portable midwifery bag, which has been brought before the notice of the profession by Messrs. Arnold and Sons of West Smithfield. It only measures 10 in. by 8¾ in. by 3½ in., but nothing is lost in variety of contents by the limited size of the bag. It contains Barnes' long forceps, metal handle (folding), craniotomy forceps and perforator to fit into the same handles, blunt hook and crotchet (jointed), frænum scissors, and female catheter. All the instruments are nickel plated, and fit in the base of the bag. The left side holds one bottle each of Messrs. Burroughs and Wellcome's tabloids in a morocco leather



case, containing the following drugs: ergotine (3 gr.), antipyrin (5 gr.), chloral hydrate (5 gr.), Warburg's tincture (30 m.), opium (½ gr.), ammon. carbonate (3 gr.), hydrarg. perchloridum (soloids, one soloid in one pint of water, 1 in 1000), and potassii permanganas (soloids, 5 gr.). The right side contains a morocco leather hypodermic case, with silver-plated syringe, two needles, and one tube of each of the following tabloids: atropine ($\frac{1}{100}$ gr.), caffeine sodio-salicylate (½ gr.), cocaine hydrochlorate (½ gr.), digitalin crystalline ($\frac{1}{100}$ gr.), ergotinin citrate ($\frac{1}{100}$ gr.), pilocarpine hydrochlorate ($\frac{1}{60}$ gr.), strychnine sulphate ($\frac{1}{100}$ gr.), eserine salicylate ($\frac{1}{100}$ gr.), hyoscine hydrobromate ($\frac{1}{120}$ gr.), morphine sulphate (¼ gr.), morphine sulphate (½ gr.), atropine sulphate ($\frac{1}{100}$ gr.), sclerotinic acid (½ gr.), one collapsible tube of lano-creolin, one collapsible tube of hazeline cream, and one capped, stoppered bottle for chloroform. The price of the bag, complete with instruments, drugs, &c., is £6 15*s*.

PILL BOX SHOOT.

THE illustration shows a very handy and cleanly way of keeping pill boxes for immediate use. The appliance hangs on the wall, where it takes up very little room, the size being 37 in. long by 7 in. wide, and it projects only two inches. It holds three dozen one-ounce boxes, four dozen half-ounce, four dozen two-drachm, five dozen one-drachm, and six dozen half-drachm; and it is impossible for the practitioner to run out of stock without warning. The saving of time and temper thus ensured warrants us in thinking that this little apparatus will be well thought of in every pharmacy, surgery, and dispensary. The price is 10*s*. 6*d*., and the makers are Messrs. Reynolds and Branson, 13, Briggate, Leeds.

THE LANCET.

LONDON: SATURDAY, MARCH 9, 1895.

IT must at once be gratefully acknowledged that Mr. ASQUITH'S Factory Bill is a very satisfactory measure. Reforms on which for years we have insisted are here accorded, so far, of course, as factory legislation is concerned. It is, indeed, difficult to find fault with the proposals laid before the House. The most that can be said is that they perhaps need here and there a little strengthening and elaboration. The Bill has truly been defined as being framed in the spirit which animated the whole of our factory legislation; the difficulties in the past have arisen from the difference between the spirit and the letter of the law. We trust that the Bill now under discussion will prevent such constant misinterpretation of the spirit of the law. Thus, as Mr. ASQUITH very truly pointed out, overcrowding is illegal, but, as overcrowding has never been defined, of course the law could not be effectively applied. Now it is proposed to define overcrowding as less than a minimum of 250 cubic feet of space for every person in a factory or workshop, and 400 feet when overtime is worked. This minimum is further to be increased when artificial light is employed. This will not only help to improve sanitary conditions, but it will tend to lessen the abuse of overtime. Of course, these stipulations do not solve the question of overcrowding in so far as it depends on ventilation. Naturally, where the ventilation is scientifically managed, the amount of space required per person for the preservation of health need not be so high. This is well illustrated in the case of theatres; for instance, the ordinary London theatre does not compare well with the Vienna Opera House, which is one of the European models of good ventilation. No Bill, however, could prescribe measures of ventilation, and it was much easier to decide that there should be no overcrowding.

With regard to the prevention of accidents, "young persons" as well as children are not to be allowed to clean machinery in motion, and in new factories more space is to be provided between the various machines. We have been in mills where we had to take the utmost care not to be caught in the machinery, so narrow was the space which formed the passages. Then there is to be better provision against fire, and against defective or dangerous machinery, a court of summary jurisdiction being empowered to require that such machines shall not be used. Occupiers of factories or workshops will have to keep a register of all accidents that occur for the inspectors or the certifying surgeons to view, and the Secretary of State will be able to direct that inquiries shall be made. Thus what is done now when accidents happen in coal mines will be done when accidents occur in other occupations, and it should also be noted that a Bill has been introduced by the Lord Advocate, Sir GEORGE TREVELYAN, and the Solicitor-General for Scotland to make provision for public inquiry in regard to fatal accidents occurring in industrial employment or occupations in Scotland.

With regard to the important question of "sweating," Mr. ASQUITH pointed out that it was not practicable to make the giver-out of work responsible for the sanitary condition of the place where the work was done. The work was sometimes given out in London and done in Scotland. It is proposed that factory inspectors, having ascertained that outwork is being done under unwholesome conditions, shall give notice to the employer and prosecute him if a month after the notice is served the work is still given out. Such measures are to be taken "where the evil is supposed to exist and in certain areas to be prescribed." This sentence is really mischievous, for it suggests that action is only to be taken in certain localities and under certain circumstances; but the evil is widespread. It may be intensified in some localities; it exists everywhere. Undoubtedly there are more sweating dens in the East-end than in the West-end of London, but there are a large number of sweating dens in the best quarters of the town. There is no need to pick out a special area; there are overcrowded insanitary workshops all over England. A list of every place where work is done should be kept and such places subjected to inspection. If it is not practicable to make the giver-out of work responsible for the sanitary condition of the place where his work is done, he must in any case supply the inspectors with the addresses and let them see to the sanitary conditions; and this should be obligatory all round in every trade and in every district. Nor would such control apply only to sanitary conditions, but also to the question of the hours of labour for women, children, and young persons. In the matter of overtime a great deal too much latitude has been allowed. Why should cigar makers, envelope folders, and such persons be allowed to work overtime? That overtime should be worked to preserve perishable articles—fruit, fish, and the harvest—is to the advantage of mankind; but need young women be kept toiling through the night because some fashionable lady wants to go to a ball in a new dress? It is quite right to pay respect to the dead, but many delicate, under-paid, and underfed women have been brought early to the grave through the constant overstrain arising from the hurried execution of orders for suits of mourning. Fortunately the grievance of overtime will be to some extent mitigated by Mr. ASQUITH'S Bill, for he proposes to reduce the overtime allowed from forty-eight to thirty-eight days per annum and from five to three days per week, and for perishable articles from ninety days to sixty days per annum. It is to be hoped that, though Mr. ASQUITH was not ready to risk the fate of the Government on the subject, the House will assent to raising the minimum age for the employment of children from eleven to twelve years, and thus place us in accord wit the Berlin Conference on Labour, where the representatives of the British Government assented to this proposal.

In dealing with laundries Mr. ASQUITH has repeated all that we have said in these columns as to their insanitary and unsafe condition, and he proposed to bring them all under the Factory Act. "The Act should apply," he said, "only to laundries carried on by way of trade, and not to laundries where the persons employed were members of the same family." We trust we do not misunderstand

this sentence. It should mean that, while persons may do their own washing in their own house without interference, they must not take in other people's washing. In the latter case washing is a trade and the Factory Act should apply. As for persons employed being members of the same family this is a very unfortunate sentence. It might mean that a family may not wash their own linen at home if they employ their own private domestic servant to aid in the work. If, as we very much fear, it is meant that persons may wash for others so long as they do not employ hired assistants the law will be constantly evaded. In sweating dens girls found there after hours are frequently represented as members of the family who have come up from the country to see the sights of town; and in the face of their employers they dare not deny these falsehoods. Besides, evil sanitary conditions are not made any better because the workers are all of the same family.

Mr. ASQUITH also includes bakehouses in his Bill. Those bakehouses that at present escape from the law because they existed before 1883, or are in towns of less than 5000 inhabitants, will now be included, and no exception will be made. There are also excellent clauses by which it is proposed that the temperature in workshops and factories where clothing is made should be kept up to 60° F.—a rule which might with advantage be extended to many other trades—that every workshop must be registered, and that docks, harbours, and the construction of buildings shall be brought, for the first time, under the scope of the law. We cannot, for the moment, do more than thus briefly scan the main provisions of the proposed measure. That it is a good Bill—we may say the best Bill that has been introduced in the House on the subject—will be very generally admitted. Still, as we have pointed out, there are one or two clauses that must be more fully explained, notably with regard to home washing and to the giving out of work. This, doubtless, will be made more clear in the course of the discussion on the future stages of the Bill, and we trust this project may soon become the law of the land.

A VERY interesting and important paper on "Thyroid Feeding in Insanity," by Dr. LEWIS C. BRUCE, of the Royal Edinburgh Asylum, Morningside, appears in the last number of the *Journal of Mental Science*. Dr. BRUCE says that he was first led to try the effect of thyroid feeding on the insane by noting that in various cases of myxœdema described as treated in this way the temperature rose from subnormal to normal and even became feverish, while the pulse-rate also was quickened. Bearing in mind the low temperatures and slow pulses often noticed among the insane, it appeared feasible that if one could induce quickened pulse-rates and higher temperatures there might be corresponding mental or physical improvement. Two cases of extreme mental deterioration were selected as trial cases, and the administration of thyroid to those produced such an effect that a trial of the treatment on a much more extensive scale was adopted. The method of observation employed was both elaborate and scientific. A careful record of the condition of the various organs and of the pulse, temperature, &c. was made before the treatment was commenced, and the record was continued during treatment. The drug in most cases was administered until a feverish condition was induced for two or three days, and it was considered that when the pulse became rapid, soft, and compressible the limit of safety was reached. Mental and physical changes were recorded on the chart from day to day. The following is a brief *résumé* of the various effects on the different systems. In the circulatory system there was among the symptoms at times a tendency to faint when the patient was in an upright position. One patient did actually faint. The pulse changes were the first indication of the effect of the drug. These were increased rate, increased volume, and lessened tension. Later, irregularity, intermission, and compressibility were induced, and the time it took the pulse to become normal after cessation of the treatment varied very much. In regard to the respiratory system, the rate of respiration was increased proportionately to the pulse-rate. One curious phenomenon was noticed—viz., that among five patients who had traces of dormant phthisis symptoms and signs pointing to a lighting up of the activity of the disease were induced by the administration of thyroid. The tongue usually became furred, the appetite diminished, thirst usually increased if the temperature rose, and nausea and vomiting occurred in several cases. In regard to the condition of the blood, in eight cases in which thyroid was the only drug administered, there was a reduction in the numbers of the red corpuscles and in the amount of the hæmoglobin, in all except one. The other seven cases took Blaud's pills or a solution of citrate of iron and ammonia as well as the thyroid. In two of these there was a gain of hæmoglobin, in three a loss. Four gained in corpuscular richness, two showed a loss, and one neither gained nor lost. It thus seems, as Dr. BRUCE points out, that the effect which the administration of thyroid has in impoverishing the blood can be, in some measure at least, prevented by the simultaneous administration of iron. Integumentary changes were also observed during the treatment. The skin became moist and at times the perspiration was profuse. Flushings were also frequently present, the pigmentation of the skin was diminished, and the complexion became soft and delicate looking. Desquamation occurred to a greater or less degree in every case after the treatment was stopped. A careful examination and estimation of the amount of urine showed that thyroid produced no diuretic action, at least in the large doses in which it was given. This may be accounted for by the profuse diaphoresis which was produced. As regards nervous symptoms, no sensory disturbances were observed, nor were organic reflexes altered in the great majority of cases. In many instances the voluntary muscles showed symptoms of over-action, and fine tremors were present in the tongue, lips, facial muscles, and limbs. Headaches were frequently complained of, and the mental condition under treatment varied greatly. Some became depressed, some emotional and others irritable; while, on the other hand, the irritable, morose, and bad-tempered became placid and amiable. In some the improvement in the mental condition was noted while thyroid was being administered; in others this was only noticeable when the period of reaction was well advanced. All the patients slept well. The temperature seemed to vary

considerably according to external conditions. Twenty-three cases were treated, eight men and fifteen women: two men recovered, three were relieved, and three were not improved; of the fifteen women, thirteen recovered and two were not improved. Amongst the patients treated were cases of mania, melancholia, syphilitic insanity, puerperal insanity, lactational insanity, climacteric insanity, and general paralysis. From a careful perusal of Dr. BRUCE'S paper it would seem that in thyroid extract we have a means of distinctly influencing certain cases of insanity. Even from the experience so far obtained by Dr. BRUCE he is able to furnish suggestions as to the kind of case in which it is likely to be beneficial, without effect, or harmful, and it may be that the future will furnish even clearer indications.

UNDER the heading of "Parliament and Prison Reform" we publish in another column a statement sent to us by a correspondent who attacks in unmistakable language the present administration of English local prisons. His allegations are of a serious nature, and we feel it to be our duty not to pass them over without observation, but rather in general terms to call the attention of the profession to the more prominent among them. The two main subjects of unfavourable criticism are the prevalence of insanity and the death-rate. The prevalence of insanity in English prisons is said to have doubled, and the death-rate is stated to be much higher than in Irish prisons, although there may be a semblance of its having decreased in English prisons. Our correspondent points out that prisoners committed in a moribund condition are not now sent to gaol, a fact which contributes to reduce the death-rate. Also it is now, he says, more generally the practice to release prisoners who are in a dying condition before the expiration of their term. 'All this naturally very materially contributes to reduce the death-rate, but it does not mean that the prisons are more healthy or that the system of management is more conducive to the preservation of life. On the contrary, since the centralisation and the more bureaucratic management of prisons we have had a rigorous assimilation of *régime*, which is certainly contrary to all physiological facts. It is preposterous to suppose that identically the same quantity and quality of food, clothing, and exercise will suit equally well an agricultural labourer and the weak, degenerate worker from a sweating den or an unwholesome and overcrowded slum of a big city. ..... Formerly, when the prisons were under local management, there was a much greater elasticity in the rules applied, and there were modifications in diet and clothing to suit special local and individual conditions."

No doubt the Prisons Act of 1877 was the means of shifting the responsibility for the management of prisons from the magistrates to the Central Prisons Board at the Home Office, and it would appear that it is to this centralisation of authority that our correspondent attributes all the evils of the existing prison administration to which he refers. Although his figures may appear in themselves to warrant the construction that he puts upon them, we are bound to say, in all candour, that we are not prepared to go the length that he does in condemning upon them alone the present management of our prisons. For instance, with regard to the death-rate our correspondent says that "there must be something radically wrong in the management of English local prisons will be admitted when the death-rate is compared with that of the Irish prisons." To make this an effective argument against the present system it would be necessary to show, as a preliminary to the consideration of the question, that during the antecedent period of magisterial management the death-rate in English prisons was not higher than in Irish prisons, or, at any rate, that the difference was less marked. Another point that our correspondent does not appear to have given effect to in the conclusions at which he has arrived is that his allegations apply in all their seriousness to a body of individuals who did not change with the transfer of power from the magistracy to the Home Office—viz., to the medical officers of the prisons. The questions of mal-administration which our correspondent raises are essentially physiological and pathological, and we must say candidly that we have every reason to think that the medical officers of prisons accept the responsibilities placed upon their shoulders, and that, generally speaking, they endeavour to carry out their duties honestly and fearlessly. Very large discretionary powers are in the present, as they have been in the past, entrusted to prison medical officers in the matter of the health of the inmates of our gaols; and this is both unavoidable and a matter of necessity. If magistrates in old days altered diet, clothing, &c., it was on the recommendation of their medical officers; if a central authority, as alleged, does not modify diet, clothing, &c., it is because the medical officers do not recommend it. We feel bound to say this, for if it were not so our prison system would be an atrocity and a farce.

But a prison system has an existence not merely with regard to its internal life and administration. It must be regarded as having a wider scope and purpose in its relation to the reduction of the amount of crime and to the better safeguarding of life and property in our midst. It is abundantly clear that a penal system which tended to encourage individuals to go into prison rather than seek to earn a livelihood by honest labour is faulty and worse than useless; and, on the other hand, it must not be forgotten that many individuals find a *régime* in prison life which, apart from the loss of "liberty," compares favourably with the miseries which it is often the lot of wretched and unwholesome members of the community to undergo.

To whatever cause or causes the fact may be attributed it is surely most significant, and not altogether unhopeful as to results on the criminal classes, that the population of our local prisons has decreased since the passing of the Prisons Act in 1877 from 20,833 to 13,850 in 1894, the lowest point having been reached by a steady decrease in 1892, when the number was 12,663, and that, too, notwithstanding the increase in the general population. We agree with our correspondent in his outspoken statement as to the importance of the questions which he has raised, and we trust that these questions will be fully inquired into by the Prisons Committee now sitting. We shall look forward to their report with much interest, not to say anxiety, for we feel assured that they will deal with the complicated subject of prison administration, not only in so far as it concerns the

well-being of the inmates of our gaols, but also in its wider relations as an integral and most important part of the legislative effort to protect the community and secure the highest public good.

Annotations.

"Ne quid nimis."

ANTITOXIN AS A PATENT MEDICINE.

A MATTER of great importance was raised on Monday evening last in the House of Commons by a question addressed by Dr. Farquharson to the President of the Board of Trade respecting the production of antitoxin serum. The question ran thus:—"Whether his attention had been called to the fact that a specification for the preparation by a German method of remedial substances, and in particular diphtheria antitoxin in a concentrated form, was accepted by the Patent Office on Jan. 26th; whether such patent would hamper the production of the serum in a concentrated form in this country for the use of public infectious and other hospitals and in the military and naval hospitals; and whether it was the intention of the Government to permit such a patent to be granted." Mr. Bryce replied to the effect that the application in question had been received at the Patent Office, and that, apart from opposition, a patent would be granted in due course; but he at the same time reminded his questioner that the Patent Act of 1883 contains provisions by which a patentee can, if necessary, be compelled to license the use of his process upon reasonable terms. The question of granting monopolies for such things as medicines is one which, as we have repeatedly pointed out, deserves to be considered quite apart from the general question of patents for inventions, the interest of the public in the subject matter being of so very special a character as it is. In the case referred to by Dr. Farquharson there is undoubted reason for a protest in the fact that the intending patentee is, we believe, a medical practitioner, who therefore is bound by the traditions of our profession to give freely to the public the benefit of his scientific discoveries or invention. It can be no reason for relaxing this rule that the medical man in question is not a British subject, for the ethical rule for which we have always contended is not of any merely local application. Even if it could be shown that the powers of the Board of Trade to control the exercise by a patentee of his monopoly were sufficient to secure the public against being prejudiced by the monopoly we should be in no wise reconciled thereby to the introduction of commercial methods into the practice of medicine. As in this matter we are convinced that we express not merely our own opinion but that of our professional brethren throughout the British Isles, we trust that our protest will be supported also by the public opinion of the profession in Germany.

THE PRESIDENCY OF THE ROYAL COLLEGE OF SURGEONS.

THERE is a singular resemblance between the circumstances attending the recent death of the President of the Royal College of Surgeons of England and those connected with the only other occasion in which the President of the College has died during his term of office. Mr. J. W. Hulke was to have delivered the Hunterian Oration on Feb. 14th, but was prevented from doing so by illness; on Feb. 19th he died. In 1831 the Hunterian Oration was delivered on the same day, Feb. 14th, by Mr. (afterwards Sir Anthony White), and the chair was to have been taken by the President, Mr. Headington, but illness prevented him from being present, and Mr. Keate presided at the meeting. Within a very few days Mr. Headington's illness proved fatal. When an office like the presidency of the Royal College of Surgeons is held for only one or two years, it must happen but seldom that the holder of it dies; and, indeed, sixty-four years have elapsed since this contingency first occurred. The meeting above mentioned at the College of Surgeons on Feb. 14th, 1831, was remarkable as being one of the earliest attempts of the Members of the College to hold a meeting within the walls of the College. Half-an-hour before the delivery of the Hunterian Oration was announced to commence the Members present held a meeting, in which the chief subject of discussion was the recent exclusion of the surgeons of the Royal Navy from the levees of the king. When the chairman, Mr. Keate, entered, he suggested that the meeting should continue after the delivery of the Hunterian Oration, and this was done, and two resolutions were carried; the chairman had, however, laid aside his robes of office, and he announced that he was not acting in his official capacity. Nothing came of the attempt, and the Council declined to consider the resolutions, as the meeting was irregular.

MILK-BORNE INFECTIOUS DISEASE.

THE control of the milk traffic is a subject which is daily receiving more and more attention, both at the hands of the public and the profession, and we imagine that ere long the necessity of extending, and perhaps even of compelling, the execution of the powers possessed by sanitary authorities will have to be considered in a practical spirit. The subject is beset with difficulties, as attempts to saddle a specific industry with limitations and liabilities not inflicted upon other food-preparing industries would be naturally much resented; and it is certainly not in the interests of public health to render the conditions of any trade so irksome as to encourage the concealment of infectious disease—a result which the too rigid application in practice of the theoretical aspects of infection would be not unlikely to bring about. The establishment of creameries drawing their milk supplies from farms in the vicinity, and the mixing at the creamery of the several supplies obtained, has introduced into the milk trade a comparatively new source of danger. Obviously the mixture of infected milk with milk not infected is a step calculated to specifically contaminate the whole; and the risks thus incurred both to the consumers of the separated milk and even, perhaps, of the cream and its products, must be patent to all. In THE LANCET of April 21st and Nov. 10th of last year we published some interesting articles by Dr. J. J. Welply[1] of Bandon, Ireland, on the subject, in which he described an extensive outbreak of enteric fever due to the consumption of separated milk from a creamery, and indicated some of the restrictions necessary to prevent these occurrences. These articles, which have certainly added materially to our knowledge of the manner in which milk-borne disease may be spread, have now been reprinted from our columns and published in pamphlet form, and although Dr. Welply's remarks apply more particularly to Ireland, the laws relating to the milk trade in that part of the United Kingdom are so similar to those in force here, that his suggestions may be taken as applying with equal force to England. *Apropos* of milk-borne typhoid fever, we notice that Dr. P. Q. Karkeek, the medical officer of health of Torquay, relates in his current annual report an outbreak of the disease in question due to the consumption of milk from a farm situated outside his own district. In commenting upon this Mr. Karkeek points out that when notification is not in

[1] Creameries and Infectious Diseases, by J. J. Welply, M.D., M.Ch. Q.U.I.

force the occurrence of cases of enteric fever amongst the milk consumers may be the first intimation that the disease exists at the farm or dairy from which the milk is derived; and even when notification is in force the obligation to notify does not extend to the districts in which the endangered milk is distributed. As a partial remedy for this state of affairs Mr. Karkeek recommends a system of compulsory cross notification—i.e., that the medical attendant shall notify to all the districts in which the milk from his patient's premises is distributed. We are afraid this suggestion would hardly be found to work in practice, more especially when applied to large towns where milk is frequently hawked about the streets and sold to persons whose names or addresses are quite unknown to the vendor. However, a discussion of the improvements which might be effected in the laws relating to the milk traffic would involve more space than we can at present devote to it. In regard to compulsory notification, it seems to us that its application to infectious disease occurring among the employés of dairies &c. would be but a partial solution of the problem, and that any additional legislation should extend to the notification of tuberculosis and eruptive diseases amongst the cows supplying the milk.

TWENTY YEARS AFTERWARDS.

MR. GAYLOR of Belper has for more than twenty years been medical officer of health for the Alfreton urban district. For looking after the sanitary status of 16,000 people he receives the by no means excessive remuneration of £50 per annum, and that he does his work well may be gathered from the fact that he has been re-elected annually since first appointed. However, *autres temps, autres mœurs*. The advent of the District Council has changed all this, and we learn from the *Alfreton and Belper Journal* that a member of the majority proposes to elect a new medical officer; also that before advertising the post the medical men in the town have been canvassed to know if they will be willing to stand for the post. Mr. Gaylor may say with the rejected suitor—

> "Perhaps it was right to dissemble your love,
> But why did you kick me downstairs?"

It is not alleged that he has neglected his duties in any way, and a more flagrant piece of injustice cannot be imagined. Here is a man who for twenty-two years has performed an arduous duty faithfully, and now he is to be superseded for what reason no one knows. That the other medical men in the town will reject the overtures of the council we feel certain, and we hope that the sense of fair play which is always said to be the characteristic of Englishmen will prevail and spare the Alfreton Council from being a by-word for injustice.

A REMINISCENCE OF THE FOUNDER OF "THE LANCET."

THE Speaker of the House of Commons has lately been appealed to with reference to the practice of members securing their seats by depositing their hats upon them at prayer time. A "political note" in the *Times* of March 5th recalls the fact that so long ago as fifty-three years a complaint was made with regard to the subject by a member of the medical profession, and our readers may be interested in knowing that the member of Parliament in question was the Founder of THE LANCET, "Thomas Wakley, Surgeon, M.P. for the Metropolitan District of Finsbury." (We quote from the title page of THE LANCET of 1842.) The following is the note in the *Times* which refers to Mr. Wakley: "Fifty years ago the securing of a seat at prayer time did not safeguard a member for the whole evening. On April 14th, 1842, Mr. Wakley publicly complained that, on returning to the House after an absence of two or three minutes, shortly before midnight, he found his seat occupied by an hon. member, who abruptly refused to give it up to him; whereupon Speaker Shaw-Lefevre explained that any member, being at prayers, had a right to the seat he then occupied, but if he left it and went out of the House any hon. member might take it, and if it were given up it was a matter of courtesy, not of right. To remedy this anomaly a standing order was passed on April 28th, 1858, to the effect that any member having secured a seat at prayers be entitled to retain the same until the rising of the House. In 1880, Mr. Mitchell Henry having raised the question as to whether the putting of a hat on a seat did not mean 'a real working hat and not a colourable imitation,' Speaker Brand said the practice of placing a hat on the seat before prayers had prevailed for a considerable number of years, and the idea had always been that when so acting the member was in immediate attendance upon the House or on a committee. With regard to the retaining of seats with papers or gloves that had never been allowed." It will be noticed that the subject was reopened in 1880 by Mr. Mitchell Henry, who was also, curiously enough, a well-known medical man, being a Fellow of the Royal College of Surgeons of England.

A LAMENTABLE MISTAKE.

A SAD CASE of poisoning occurred last week at Skelmersdale near Ormskirk through the mistake of a druggist's apprentice. A woman went to purchase for her brother a black draught and received one ounce of tincture of opium in mistake, with the consequence of the death of the patient in about three hours. It appeared from the evidence at the inquest that the tincture of opium bottle was next to the black draught on the shelf in the shop, and the manager of the shop said so far as his experience went there was nothing unusual in keeping the opium next to the black draught or other harmless mixture and in a bottle of the same style and label as the rest. He said it would spoil the appearance of the shop to have bottles of different sizes and patterns, and appearance was of some importance, eliciting the appropriate remark from the coroner that "the lives of people are of some importance as well as the symmetry of a shop." There can be no doubt that if such customs do prevail in the ordinary druggist's place of business accidents or mistakes like this will take place. Surely a cupboard or shelves should be set apart, and could be, without spoiling the symmetry of a shop; and, besides, every bottle containing poison, such as tincture of opium, should have a distinct "poison" label on it. If this bottle had had such the purchaser would have seen the mistake being made. If it is requisite to dispense strong poisons in fluted bottles and label them "poison" it is equally requisite to adopt some plan by which mistakes such as that recorded above can be prevented.

CRIME AND ITS FACILITIES.

ON another page we publish the remarkable life history of a Spanish family, four members of which out of eight died violent deaths, either by their own or their neighbours' hands, while of the rest one only died "in his bed." We need hardly feel surprised if this catalogue of disaster should be regarded as suggesting the existence of a criminal constitution or family type. It is encouraging to find, however, that there is even among the class of experts devoted to the study of "crime" a divergence of opinion respecting the question of heredity in this relation. The resultant of such opinion amounts to a verdict of not proven and not probable. Mental and physical weakness, the depressing effect of poverty, numerous defects and frailties of character having a general significance, and climatic and racial variations even may exercise a certain influence upon character, but the true criminal type has not so far been plainly revealed as part of the mode and custom of moral evolution. Defective education has much to do with the matter, idleness

even more, nor should we omit to mention yet one other contributing factor—namely, the habit of carrying, needlessly in many cases, and using as freely, weapons of offence. The Spanish knife, indeed, may not always come under condemnation on this ground, and it is doubtless useful for many better purposes. Nevertheless, it is probably much less essential than it is believed to be by those who wear it. It has not been found to be equally indispensable by most other civilised peoples. Among ourselves there exists a no less indefensible custom, that of carrying superfluous firearms. Again and again have we been reminded of the reckless abuse associated with the pocket revolver, and the facts related by our correspondent and already commented on have a special interest as bearing upon this now familiar evil. We sincerely trust that the restrictive measure to which we alluded last week will before long be added to the Statute-book, and that it will by its practical success commend the principle of a general disarmament in regard to all similarly unnecessary weapons.

DIPHTHERIA IN LONDON.

THE deaths registered from diphtheria in London last week were 31 in number, an increase from 27 and 29 in the preceding two weeks. The corrected decennial average for the particular week is 29·6, exceeded last week by one. Only one of the deaths was in a person aged over twenty years, and 20 of them were in children aged from one to five years. Six were credited to Camberwell, 3 to Greenwich, and 2 each to St. Pancras, Islington, and Poplar sanitary areas. The removals to hospital numbered 43, less than half the cases having freshly arisen; and compare favourably with 49, 55, and 54 in the three preceding weeks. There were 463 patients suffering from the disease in hospital last Saturday, as against 500, 493, and 486 on the three Saturdays immediately preceding. In Greater London 9 deaths from diphtheria were registered, including 3 each in West Ham and Edmonton districts.

THE MUTILATION MARKET AND THE BUSINESS OF MENDICANCY.

AUSTRIA-HUNGARY is acquiring an evil pre-eminence in the manufacture of deformity and "lusus naturæ." Some eighteen months ago[1] we commented on the discovery made by the Croatian police of a regular mutilation den, where boys and girls of tender years were distorted or maimed to supply the mendicancy market—a den where by fracture or by continuous pressure between boards tightened by screws the legs and arms and spinal columns of these poor little victims were made to assume monstrous shapes—where even the eyes were gouged out and artificial sores created—all to provide the traffickers in street-begging with "objects" wherewith to solicit the alms of the benevolent. The arrest and severe punishment of these purveyors of deformity seems, however, to have put no effective stop to the practice, for we read in a Hungarian journal that "at Prague a man, Proschaska by name, was taken into custody charged with selling to the firm of Ritter and Munster of Holstein a number of children who, by means of specially contrived alimentation, had had their growth arrested for exposure as 'Liliputians' in itinerant exhibitions." For every child so stunted and maltreated the sum of 300 florins was paid. We further read that not only were the authors of the "Liliputianising" system brought to justice, but also the unnatural parents who consented to its being applied to their offspring and who received money for doing so. This is, of course, quite commendable on the part of the law, but we fear its heaviest punishment will have small deterrent force so long as the public do not coöperate in suppressing the "business of mendicancy." Indiscriminate almsgiving lies at the root of the whole evil. Rather than take the trouble to ascertain where relief can most worthily and effectively be bestowed the so-called "benevolent" man will lavish his small change on every beggar who crosses his path, thereby creating half a dozen similar beggars for every one he subsidises and depriving the really well organised charities of the funds of which they are sorely in need. One of the most large-hearted economists of his generation, Archbishop Whateley, congratulated himself at the close of his life that he never gave a penny to a beggar, but that the money withheld from such objects had been profitably bestowed on the institutions, medical and other, where succour was vouchsafed only to the deserving. If the public acted with equal wisdom and stiffened its back against the professional mendicant while relaxing its pursestrings in support of well-accredited charities, an end would speedily be made of the "business of beggary" with all its concomitants of "mutilation dens" and "Liliputian farms," and "lusus naturæ" manufactured and supplied to order. We hope the subject will be adequately discussed at the International Congress for the Protection of Infancy which will meet next July at Bordeaux.

[1] THE LANCET, Aug. 26th, 1893.

THE UNIVERSITY OF CAMBRIDGE AND THE EXTENSION OF SCIENCE TEACHING.

PROFESSOR CLIFFORD ALLBUTT, in a letter published in another column, calls attention to a very reasonable method of extending university teaching which is contemplated this summer by the University of Cambridge. Members of the medical profession are invited to attend courses of lectures and demonstrations upon the scientific side of their professional work, and facilities are to be granted to them which should make their visit to the university town not only instructive but inexpensive and pleasant, as an insight into Cambridge collegiate life will certainly be among the things to be gained in a programme which provides for residence in college. The question of the advantages and disadvantages of the extension of university teaching is a very large one, into which we do not propose to enter; but the departure for which the various professors of science at Cambridge are responsible seems to us not only free from all objection but worthy of all praise, and we are certain that their invitation will be promptly replied to.

OYSTERS AND TYPHOID FEVER.

AN interesting note on this subject appears from the pen of Mrs. Percy Frankland in *Nature*.[1] She points out that De Giaxa some years ago found that in ordinary sea water the typhoid bacillus suffered very considerably in the competition with the numerous other water bacteria present; but it was still identified on the ninth day, and in other specimens it could be detected on the twenty-fifth day after it was introduced. Cassedebat, an investigator in the same field, found, however, that whilst many pathogenic bacteria, including anthrax and cholera, lived for many days, typhoid bacilli were destroyed in the course of forty-eight hours in sterilised sea water. On this point Professor Percy Frankland has made some interesting observations to the effect that the addition of 1 and 3 per cent. of common salt to ordinary Thames water into which typhoid bacilli were introduced acted very prejudicially on the latter, although it stimulated the multiplication of many forms of water bacteria. De Giaxa also experimented with fish, introducing pathogenic microbes by the mouth; but he selected only cultures of cholera and anthrax bacilli for this purpose, with the result, however, that in both cases these micro-organisms were entirely destroyed in a few hours. In the greater bulk of the

[1] Feb. 28th, 1895.

experiments made with oysters and some varieties of mussels, replaced in sea water after inoculation through a hole in the shell which was afterwards sealed up, he found that the pathogenic microbes (cholera and anthrax) had entirely disappeared in six hours, whilst in only two instances were they detected in small numbers at the end of twenty-four hours, and in no case were they identified after forty-eight hours. From these results there would appear to be no evidence that these pathogenic microbes are capable of being transmitted by means of these shell-fish; but, as the writer suggests, the subject might well claim reinvestigation, especially in regard to oysters as possible transmitters of typhoid fever.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

DR. ARTHUR NEWSHOLME will deliver the third and fourth Milroy Lectures on Tuesday, March 12th, and Thursday, March 14th, respectively, on the Natural History and Affinities of Rheumatic Fever. The first two lectures we are pleased to be able to reproduce in full in our columns this week. Dr. H. D. Rolleston will deliver the Goulstonian Lectures on the Suprarenal Capsules on Tuesday, March 19th, Thursday, March 21st, and Tuesday, March 26th, respectively. Dr. G. Fielding Blandford will deliver the Lumleian Lectures on the Diagnosis, Prognosis, and Prophylaxis of Insanity on Thursday, March 28th, Tuesday, April 2nd, and Thursday, April 4th, respectively. All the lectures will be delivered as usual at the College, Pall Mall East, at 5 P.M.

THE POOR-LAW MEDICAL OFFICERS' ASSOCIATION.

WE have received from Mr. J. Wickham Barnes the following copy of a petition, which is to be presented to the House of Commons shortly:—"To the Honourable the Commons of Great Britain and Ireland. The humble petition of the Poor-law Medical Officers' Association. Sheweth: That your petitioners are an Association representing the Poor-law medical officers of Great Britain. That notwithstanding the present equitable claims of Poor-law medical officers to superannuation under existing Acts of Parliament, your petitioners are ready to contribute a percentage deduction from their salaries and emoluments in order to secure certainty of superannuation to every Poor-law medical officer." All Poor-law medical officers who have not yet sent in their petitions to Mr. Wickham Barnes, hon. secretary of the Association, are earnestly requested to forward them to the Member of Parliament of their district for presentation before March 15th. We trust that the House will see their way to grant so reasonable a petition, feeling sure that they must see, as we do, that in every branch of public service the most obvious method of raising the standard of the officers—and so ensuring the best work—is to give to these officers that stability of position which can only be ensured by security as to their pecuniary future.

THE LATE MR. HULKE.

THE funeral of the late President of the Royal College of Surgeons of England took place on Saturday, Feb. 23rd, at Deal. Mr. Alfred Willett and Mr. Cowell represented the Royal College of Surgeons of England; Dr. J. Kingston Fowler, Mr. A. Pearce Gould, and Mr. G. H. Lock (house surgeon), the Middlesex Hospital; Dr. Sims Woodhead, the Laboratory Department of the Conjoint Board of the Colleges of Physicians of London and of Surgeons of England; Mr. Reginald Harrison, the Royal Medical and Chirurgical Society; Mr. John Langton and Dr. C. Holman, the Clinical Society; and Mr. Lydekker, F.R.S., the Geological Society. The service at Deal was conducted by the Rev. Bruce Payne. Simultaneously a service was held at St. James's, Piccadilly, at which the Royal College of Physicians of London and other institutions with which the deceased was connected were officially represented. Among those present were Sir William Savory, Bart., F.R.S., the life-long friend of the deceased, so soon, alas, to follow him; Sir James Paget, Bart., F.R.S.; Sir William MacCormac, Mr. Birkett, Mr. Bryant, Mr. Butlin, Mr. Andrew Clark, and Mr. Trimmer, the secretary of the Royal College of Surgeons of England. The Royal College of Physicians was represented by the President, Sir J. Russell Reynolds, Bart., F.R.S.; the Censors, Dr. Pye-Smith, F.R.S., and Dr. T. T. Whipham; and the Treasurer, Sir Dyce Duckworth. Among those present, but in unofficial capacity, were Sir George Johnson, F.R.S., Sir William Priestley, Sir George Buchanan, F.R.S., Dr. Allchin, Dr. Norman Moore, Dr. Pavy, F.R.S., and Dr. Douglas Powell. The Rector (the Rev. J. E. Kempe) conducted the service and gave a short address, in which he referred sympathetically to Mr. Hulke's long connexion with the parish.

THE WATER-SUPPLY OF CHESTER.

THE report of the Special Committee of the Chester Town Council, which was issued two months since, has not long been allowed to go unchallenged. Dr. W. M. Dobie, in an interesting and exhaustive letter in the *Chester Courant*, traverses many of the important conclusions to which the committee came. After indicating some of the defects in this report he expresses the opinion that an adequate supply of pure water from wells beyond the city and also from a point in the river above Farndon could most probably be obtained. While we agree with Dr. Dobie in his general remarks upon the value of chemical and bacteriological analysis of water, we must point out that the example of a chemical analysis of water which he quotes is hardly fair, since it does not contain a single item upon which a trustworty opinion, from a sanitary point of view, could be based. His statement also in regard to the vitality of the bacillus typhosus in sewage water would appear to require modifying in view of the results of recent research. Taking it as a whole, however, Dr. Dobie's letter seems to us to establish a pretty fair case.

THE NEW (?) STREET DANGER: A CURIOUS POSSIBLE CAUSE.

A VERY remarkable observation, which may throw light upon the cause of the recent explosions in electric light boxes in the streets, appears in a letter addressed to the chairman of the St. Pancras Electric Light Committee by the Board of Trade. It is that Major Cardew, the electrical adviser of the Board, has discovered in his investigations that a remarkable deposit on some of the insulators contained a considerable quantity of the metal sodium. In the absence of further evidence upon this point it is impossible to account for this singular occurrence; but, of course, the electrolysis of a sodium salt is indicated, and it would be interesting to know whether the materials used in insulation contained any fusible salt of sodium such as, possibly, borax. At any rate, the manufacture of sodium under the pavements of the streets in this perfectly indiscriminate way is exceedingly dangerous, and demands prompt repression. To this end we are glad to learn that the Board of Trade have asked the assistance of the Royal Society and of the Institute of Electrical Engineers in order to investigate the causes leading to the formation of this substance, and thus to set at rest what at first sight appears to be a chimerical view. In the meantime the primary cause of the recent explosion cannot be accepted as having been satisfactorily decided. It may be coal gas, or it is just possible that the gas is derived from the distillation of gases out of the bituminous insulating material by the over-heating of the

cable. In one instance (at Leicester on Feb. 13th) the electric gas engineer attributed the explosion to the oil used in the insulating material having become "gasified" by the electric arc. In any case the boxes should be properly ventilated, and the air space reduced as far as practicable by filling them up with some inert material, much in the same way as the culverts built over high pressure gas mains for the purpose of getting to the mains and clearing them of obstructions are filled. If, again, it is shown to be due to defects in the gas main, pressure should, of course, be brought to bear upon the gas companies to have these defects remedied. It is reasonable, however, to suppose that the gas companies are just as anxious to prevent leakage and waste of their gas as everyone must be to learn of the discovery of an effective provision against any future occurrences of this kind, which experience has shown may imperil life and limb.

NIGHT SHELTERS FOR THE DESTITUTE.

THE recent exceptionally severe and prolonged frost has caused intense suffering among the unemployed and destitute classes, who will probably for some time yet be unable to resume their uncertain and precarious occupations. Philanthropic workers among these unfortunates recognise the primary necessity of protecting them from the inclement weather during the night as well as of providing a small allowance of food. Such a free refuge for the hopeless and despairing has been established in Phœnix Hall, Carlton Vale, in the north-west of London, and each night it affords a shelter to about 600 men. Financial help is greatly needed, and subscriptions will be thankfully received by Miss F. Ashdown, 27, Kilburn-park-road, N.W. Two Sisters of the Church attend at the hall every night to receive the applicants for admission, many of whom are in a truly woeful state.

THE MEATH HOME FOR FEMALE EPILEPTICS.

THE second annual report of the Meath Home of Comfort for Epileptics at Godalming will be read with interest by all who are seeking to benefit this unfortunate class. At this home only female epileptics are admitted, the limits of age being two years and thirty-five. The plan of treatment is to provide bright and healthy surroundings and suitable useful occupation, treatment by drugs taking a secondary place. Needlework, knitting, and basket-work are the occupations which are chiefly followed, and the proceeds of the sale of the manufactured articles form an important item in the receipts of the home, amounting, together with those from the sale of garden produce, &c., to upwards of £100. The report by the medical officer shows a marked improvement in the health of most of the cases admitted. We regret to see that the home is crippled for want of funds. Six inmates had to be discharged in consequence of fees failing, there being a very limited number of free beds. It is to be hoped that so excellent a movement will not fail to receive warm and generous public encouragement. All subscriptions may be sent to Colonel Clarke, R.E., Uphill, Warren-road, Guildford.

THE DIFFUSION OF SMALL-POX.

THROUGHOUT the United Kingdom the news coming to us in respect of last week concerning the prevalence of small-pox is of a most reassuring character. In London there were but 8 new cases and 1 registered death—namely, that of a person between the ages of twenty and forty belonging to the Newington sanitary area, and as to whose vaccination no statement is forthcoming. All the 8 cases were removed to hospital, the institutions of the Metropolitan Asylums Board containing at the close of the week 63 patients, as compared with 56, 67, and 75 on the three preceding Saturdays. One or two cases in suburban districts are recorded. In the rest of England there were a few attacks at Birmingham, Liverpool (where also 1 death was registered), and at a small number of other Lancashire towns. In the third week of February there were 2 deaths from small-pox in Edinburgh, and in the same week there were 6 deaths in Dublin. Of these, 2 were in vaccinated persons, aged respectively eighteen and thirty-eight years, and 4 in unvaccinated individuals, aged twenty days, twenty-one days, twenty-eight years, and thirty-three years respectively. The admissions to hospital, which had been 69, 60, and 56 in the three preceding weeks, fell further to 37, and were exceeded by the discharges, which were 44; the patients remaining under treatment being 135, in addition to 119 convalescents at the South Dublin Union small-pox hospital at Kilmainham. The total of 254 thus made compares favourably with recent records.

PROPOSED ASSOCIATION OF QUALIFIED MEDICAL ASSISTANTS, JUNIOR MEDICAL OFFICERS, AND LOCUM-TENENTS.

WE are desired by Mr. T. Howard Brocklehurst, who is acting as organising secretary, to announce that a meeting in connexion with the proposed Association of Qualified Medical Assistants, Junior Medical Officers, and Locum-tenents will be held on Monday next, the 11th inst., in the Examination Hall, Victoria Embankment, at 3 P.M. Dr. J. G. Glover will preside, and all interested in the matter are invited to attend. In announcing this meeting we beg to refer our readers to a letter from Mr. Brocklehurst which appeared in our columns on Jan. 5th of this year, and to our leading article in the same issue. Mr. Brocklehurst's letter gives the reasons for his belief that the new departure would work for general professional good, and our article endorses, with certain limits, his views. We are happy, therefore, to assist the movement by recommending to all concerned that they should attend the meeting and assist in placing the proposed association upon a definite basis.

THE COUNTY COUNCIL ELECTION.

THE medical profession of London was by no means unrepresented at the election for the London County Council, which took place on Saturday last; but we should have been glad to see our professional brethren in larger numbers before the constituencies. Seven medical practitioners presented themselves as candidates for election, and of these no fewer than five were returned. The seats so filled are Bermondsey, occupied by Mr. G. J. Cooper; Greenwich, by Dr. Ralph Gooding; North Hackney, by Dr. E. B. Forman; West St. Pancras, by Dr. W. J. Collins; and Wandsworth, by Dr. G. B. Longstaff. In every one of these constituencies, as, indeed, throughout the metropolis, there was a contested election, and in every instance the medical practitioner came in at the head of the poll. Four of the five, that is to say all save Dr. Gooding, sat upon the last County Council, so that they were known to their constituents and will be familiar to their work. Dr. Gooding was a candidate for a constituency within which he is resident, and has received the suffrages of his neighbours. We congratulate both him and them upon his accession to this new sphere of usefulness. The medical element in the County Council has not received any increase of strength on the present occasion, for the addition of Dr. Gooding to its ranks is balanced by the loss of Mr. H. Harris who sat for Brixton in the last Council, and whose name, as well as that of Mr. Gibson Bott, we regret to miss from the new muster-roll. We should have been glad, as we have said, to see a more adequate representation of the art of medicine in the ranks of the councillors, for, having regard to the very large proportion of the Council's work which bears directly or

indirectly upon the public health, we cannot regard the proportion of five members out of 118 as at all adequately representing the interest which the medical profession takes, and is bound to take, in the management of London municipal affairs. This becomes very evident if a thought is given to the immense amount of work which devolves upon the committees of the Council—work which, although done in comparative obscurity, is of the greatest importance to the community and makes proportionate demands upon the time and attention of the members. At present the institution is new, and can hardly be said to have got into steady working order. Practical aims and practical men are elbowed aside to some extent by politicians and theories; but as time wears on, and the functions of this body become more clearly defined and its ambitions more circumscribed, we confidently expect to see medical practitioners taking a growing share in its labours, and, we may add with equal confidence, in its successes.

SIR FRANCIS WYATT TRUSCOTT.

BY the death of Sir Francis Wyatt Truscott the City of London has lost one of its representative public men. The deceased knight suffered from bronchitis and asthma, and died on March 3rd after a short illness. Born in Truro in 1824, he was admitted to the Corporation of London as a Common Councilman in 1858, and in 1871–72 he and Sir John Bennett were sheriffs. As many of our readers will remember, it was during this period that the Prince of Wales safely passed through his very severe attack of enteric fever, and the national thankfulness for this happy result found expression in various ways, which in the City took the form of a Thanksgiving Service in St. Paul's Cathedral, attended by the Queen and the Royal Family, and followed by a display of illuminations in the evening. Both sheriffs were knighted in recognition of their services on this occasion. In 1871 Sir Francis Truscott became Alderman of Dowgate Ward, and in 1879 he was elected Lord Mayor, his term of office being marked by several important civic events, and by his elevation to the office of Grand Warden of Freemasons, in which capacity he entertained the Prince of Wales, the Grand Master, and other dignitaries of the craft at a Mansion House banquet. Sir Francis Truscott was a member of the firm of Messrs. James Truscott and Sons, printers and stationers; besides his services to the Corporation he filled many public positions of honour and responsibility. He rendered great services to the cause of the Metropolitan Hospital Sunday Fund, and it is for this reason more especially that we feel that his death should be not unrecorded in the columns of THE LANCET.

THE INFLUENZA EPIDEMIC.

IT may reasonably be hoped that the influenza epidemic prevailing in London is now on the decline, although the character of the disease and its obvious relationship to grave pulmonary affections will, we fear, be evidenced in the heightened death-rate for a few weeks to come. One feature of the present recrudescence of the disease—for it has not been entirely absent from this country since its appearance at the end of 1889—is the irregularity of its incidence, contrasting with the far more orderly march of the great pandemic wave which traversed the globe five years ago. We hear of its appearance in certain great Continental cities, but without any evidence of its being conveyed from one to the other. This would accord with the view that the influenzal germ or virus still persists in places where it was introduced at the time of the pandemic, and that some local conditions have served to bring about its renewed activity and virulence. Here in England the phenomenal frost, which has coincided with the outbreak, suggests a heightening of individual susceptibility to the disease from the depression of vital powers produced by the influence of cold. But hitherto no concordance has been established between the prevalence of influenza and exceptional climatic conditions, at least in the manner suggested by the above hypothesis. In his admirable study of the mortality from influenza which appears in the current volume of the Epidemiological Transactions, Dr. Franklin Parsons shows that since the disease reached this country from the East at the close of 1889 there have been in all five epidemics, notably in London—namely, (1) in the winter of 1889–90, (2) in the spring and summer of 1891, (3) in the winter of 1891–92, (4) in the spring of 1893, and (5) in the winter of 1893–94. Each of these outbreaks arose with marked suddenness and rapidly culminated, although the later ones declined more slowly than the earlier. As Dr. Parsons points out, the character of the disease in this respect has been approaching rather to that of an endemic disease with seasonal prevalence. We would, however, fain hope from what epidemiology teaches that influenza has not come to stay as an endemic in these islands. It is true that it has already persisted longer than previously recorded outbreaks would suggest, and there is, indeed, no *a priori* ground for rejecting the notion that it may become as fixed a habitant as measles or scarlet fever, having, like them, periods of epidemic prevalence, governed doubtless by some laws or conditions as yet unknown. As regards the mortality attributable directly to influenza, we would remark that when, as at present, the outbreak coincides with states of weather favourable to respiratory disease, there is risk of attributing to influenza itself a far greater virulence than it actually posseses. The advent of more genial weather will operate in diminishing the mortality from respiratory affections, and in hastening the convalescence of those who have been subjected to the depressing action of the virus of influenza.

THE LATE PROFESSOR BLACKIE.

EDINBURGH and her school have sustained a severe loss in the death of this kindly scholar and brilliant man of letters. "An Old Pupil" writes:—"For thirty years John Stuart Blackie held the Greek Chair in our University, and if he did not turn out a generation of Porsons and Hermanns he certainly threw the charm of Hellenic literature and art round the mental equipment of thousands of young aspirants to all the professions. More a man of letters than a philologist, though by no means inadequate on this latter side, he sought to make Greek a living influence even in the case of those who had no leisure or capacity for the language. He was the life and soul of that private symposium peculiar, I believe, to Edinburgh, at which old pupils and advanced professional men assembled in rotation at each other's houses to read and discuss the master-works of Greek poetry or speculation. The medical calling was largely represented on those occasions, and the genial friction of mind with mind which the readings called into play had a wonderful effect in relieving the restrictive influences contracted by absorption in purely professional work. Of no calling was Professor Blackie more cordially enamoured than the medical, constantly attending the meetings of the Medico-Chirurgical Society and interesting himself with something more than the enthusiasm of an enlightened amateur in the great problems emerging from time to time in the development of the healing art. The last time I met him was in London, when he surprised and delighted the company with his exposition of the Hippocratic treatise on Air, Water, and Locality, and made himself instrumental on the occasion in bringing to the notice of the medical scholars present the recently published biography of the

great critic and physician, Adamantios Koraês, the modern Greek who graduated in medicine at Montpelier and left an epoch-making mark on Hippocrates and other classics. He was at the head of every liberally devised scheme for university extension, and the Edinburgh school owes it largely to him that it keeps so vigilantly in touch with academic progress, not only in literature but in science, particularly as reinforced from abroad."

DEATH OF DR. HACK TUKE.

WE regret to have to announce the death of Dr. Hack Tuke, which took place at his residence, 63, Welbeck-street, on March 5th, from cerebral hæmorrhage. Owing to the extreme pressure on our space this week we are compelled to defer the publication of an adequate biographical notice until our next issue.

A MEMORIAL of the late Dr. Francesco Gasco, Professor of Comparative Anatomy and Embryology in the University of Rome, whose brilliant career we sketched in THE LANCET of Nov. 3rd, 1894, is in active progression. Its promoters include the most distinguished names among his colleagues, as well as those of many old pupils now holding professorships in the various Italian schools. It will take the form of a monument to be erected over his tomb in the Campo Verano.

OUR special articles dealing with the Difficulties under the Infectious Disease (Notification) Act have been reprinted in pamphlet form, and the pamphlet will be sent post free at a charge of sixpence upon application to the office. The reprint has been undertaken as a practical response to the many questions which have reached us concerning the points raised by the articles.

HIS ROYAL HIGHNESS THE DUKE OF CAMBRIDGE has consented to take the chair at the festival dinner of the National Hospital for the Paralysed and Epileptic, Queen-square, which is to be held on Tuesday, April 2nd, in the Whitehall Rooms of the Hôtel Métropole at seven o'clock.

MR. S. L. HINDE, L.S.A., who so ably assisted in a recent campaign against the Arab slave raiders on the Upper Congo, will lecture on his three years' travelling and fighting experiences in the Congo Free State before the Royal Geographical Society on Monday next, March 11th.

WE regret to learn the death of Mr. Charles Edward Armand Semple, M.B. Cantab., M.R.C.P. Lond., Physician to the Royal Society of Musicians and Secretary to the Court of Examiners and Board of Examination in Arts of the Apothecaries' Society of London.

WE are sorry to announce that Dr. R. C. A. Prior, the Senior Fellow of the Royal College of Physicians of London, is suffering from a very severe attack of influenza.

WE have heard with deep concern of the death of Mr. Charles H. Robinson, M.R.C.P., F.R.C.S. Irel., of Kingstown, who was a frequent contributor to our columns.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL.—The annual meeting of governors was held on March 1st at the hospital in the Marylebone-road, Major McMahon presiding. The committee's report stated that H.R.H. the Duchess of York has graciously consented to become a vice-patron of the hospital. During 1894 there had been 1079 in-patients and 1318 out-patients. The expenditure had exceeded the income by £1571.

PARLIAMENT AND PRISON REFORM.

(FROM A CORRESPONDENT.)

FOR some time past much dissatisfaction has been expressed concerning the administration of English local prisons. There have been deputations to the Premier and to the Home Secretary from representatives of societies that seek to assist discharged prisoners, and articles have appeared in the magazines and the newspapers. As a result of these complaints Parliament appointed last summer a committee to inquire into the matter. This committee, under the presidency of Mr. Herbert Gladstone, has already held about a dozen sittings. Among its members we note the names of Dr. Bridges and Sir John Dorington, M.P. The latter gentleman is a county magistrate, and this is important, because the Prisons Act of 1877 has always been looked upon with considerable disfavour by county magistrates. This Act completely deprived them of all responsibility in the management of prisons, yet it left them a semblance of power by giving them the right of inspection &c. All real power was centralised by the Act at the Home Office. Such centralisation has naturally destroyed the local interest formerly felt in the fate of prisoners, with, it is maintained, very disastrous results on the health of the inmates of local prisons. The prevalence of insanity in English prisons has doubled and the death-rate is much higher than in Irish prisons. These are weighty facts and alone suffice to justify the holding of a Parliamentary inquiry. It may, nevertheless, be urged that the death-rate in English prisons has decreased. In reality, however, the facts may not be what the figures seem to indicate. On p. 24 of the seventeenth report of the Prison Commissioners we find allusion to a circular from the Home Secretary to the magistrates, and it will be seen that formerly a large number of prisoners were committed in a moribund condition. Now such cases are not sent to gaol, and this contributes to reduce the death-rate. Also it is now more generally the practice to release prisoners who are in a dying condition before the expiration of their term. All this naturally very materially contributes to reduce the death-rate, but it does not mean that the prisons are more healthy or that the system of management is more conducive to the preservation of life. On the contrary, since the centralisation and the more bureaucratic management of prisons we have had a rigorous assimilation of *régime*, which is certainly contrary to all physiological facts. It is preposterous to suppose that identically the same quantity and quality of food, clothing, and exercise will suit equally well an agricultural labourer and the weak degenerate worker from a sweating den or an unwholesome and overcrowded slum of a big city. Nor is the climate of every part of England so identically alike that exactly the same food and clothing will do for every prison. Also there are the sanitary conditions, the soil, the drainage, the warming, the ventilation, which differ in the various prisons; and a prison dress which is ample in a dry well-warmed prison is quite insufficient where dampness prevails and the warming methods are defective. Formerly, when the prisons were under local management, there was a much greater elasticity in the rules applied, and there were modifications in diet and clothing to suit special local and individual conditions.

That there must be something radically wrong in the management of English local prisons will be admitted when the death-rate is compared with that of the Irish prisons. The average annual death-rate in the Irish prisons during the ten years 1883–84 to 1892–93 was equal to 4·15 per 1000, while in the English local prisons it amounted to 7·7. The report of the Parliamentary committee should explain why there is so notable a difference between the Irish and English prisons. It certainly will be urged that the treatment of the Irish prisoners is at once more humane and more in keeping with physiological laws. There is one fact that stands out in bold relief—namely, that the punishment-rate is much lower in the Irish than in the English prisons, and furthermore, that in Ireland there is no corporal punishment inflicted for offences committed while in prison. In England, in 1893–94, no less than 98 prisoners were flogged for bad conduct while in prison, and 87 were put in irons. In Ireland there are no irons, though sometimes leather straps or a sort of muff are used, but even this milder form of punishment is not so frequently employed as the irons in England. The question

arises whether there is not some connexion between the high rate of punishment and the high rate of mortality in English local prisons. It must be borne in mind that ordinary imprisonment is, at best, a very severe physical trial. When, however, this is aggravated by a large amount of prison punishment the consequences may be serious. Punishment involves confinement in cells, reduction of diet, and loss of stage privileges; it means solitary confinement in dark cells and no exercise. Assuredly this sort of punishment must reduce the vitality of the prisoners, and there were upwards of 30,000 such penalties inflicted in the English prisons during the year 1893–94.

Some attempt has been made to show that the prison treatment cannot be so very bad, as it is not the old prisoners who commit suicide. Nothing can be more erroneous than this statement. It is said that in the five years ending March, 1893, there were in all 43 suicides in the prisons. Of these, 16 occurred within one week of imprisonment, 9 within two weeks, 5 within a month, 5 within two months, 3 within three months, and only 2 after twelve months' imprisonment. From this one is led to believe that suicides are much more frequent among persons condemned to short terms, or who have not yet acquired any experience of prison life, and who kill themselves from apprehension of what it may be rather than from actual knowledge. Yet any statistician must know that such matters must be judged, not by the actual number of suicides, but by their proportionate relation to the number of persons concerned. Thus, for instance, in the year 1893–94, there were 161,841 persons sentenced to imprisonment. Out of this number, however, only 680 were sentenced to terms of over a year. Two suicides out of 680 persons is a much higher proportion of deaths than 41 out of the remaining 161,161. From the 43 suicides must be deducted not only the 2 suicides that occurred after a year's imprisonment, but also 19 suicides of prisoners under remand awaiting their trial. These latter were not exposed to the full rigor of prison discipline and diet. There thus remain 24 suicides committed by convicted prisoners before they had undergone twelve months' imprisonment, as opposed to 2 suicides after twelve months; and these two suicides, as compared to the very small number of persons in prison for more than twelve months, represent much the highest death-rate from suicide. As for the ordinary death-rate, it will be found that probably more than half the prisoners who die in prison are old offenders. The proportion is greater than that shown by the actual figures given, for in some cases previous convictions are successfully concealed. In 1894 there were 111 prisoners died, and 69 or 70 had undergone previous sentences of imprisonment. This seems to indicate the fatal effects of repeated imprisonment.

With regard to the very alarming increase of insanity among prisoners, it is remarkable that, though the number of previous convictions is given in the death-rate, no similar figures exist relating to the number of convictions in cases of insanity. It is, therefore, not possible to check the assertion made that, out of 354 prisoners declared to be insane in 1893–94, only 20 had been previously imprisoned. This seems most unlikely, for it so happens that the cases of previous imprisonment are incidentally recorded in the report received from Holloway Gaol. There we find that, of the prisoners who became insane in Holloway Gaol, 15 had been in prison before. Thus, if the number 20 is correct, this only leaves 5 prisoners for all the other prisons of England who can be described as having undergone previous imprisonments and as having become insane. Again, the question might be asked why is there not a comparative summary of insanity among prisoners during the different years? It is only by looking at the judicial statistics that one discovers the frequency of insanity has doubled under the present centralised system of management. In the face of such circumstances it may be asked whether the prison authorities have consulted experts on mental disease. It is understood that Mr. Lewis of the Wakefield West Riding Asylum and Dr. Claye Shaw have been before the Parliamentary committee. Evidence has been taken on the cellular system, the restriction of prison industries and their effect on the increase of insanity. From my knowledge of the subject, and what such authorities as the above medical witnesses are likely to think, I feel convinced that they will have condemned the present manner of applying the cellular system.

A great deal of valuable evidence has been obtained by the Parliamentary committee. Their labours are not likely to terminate soon, as the scope of their reference has been extended. Under these circumstances would it not be well to publish the evidence already collected? The public have good reason to be anxious about the matter, and perhaps fuller information would be forthcoming if more was known of what is now being done. So far as the inquiry has actually gone, the results, we have good reason for believing, seem to point to the probable breaking down of the bureaucratic system at the Home Office. Then efforts will be made to introduce a different method of dealing with juvenile offenders, to establish a more rational classification of prisoners, to extend industrialism, and to relax the rigidity of the cellular system. It is also well nigh certain that improved and more varied diet will be proposed, more especially in the earlier stages of imprisonment. What with the very scanty diet and the further reduction in the amount of food as a form of punishment for breach of prison discipline, the prisoners, it is maintained, are reduced to such a state of weakness that it often happens they leave prison physically unfit for work. This, in any case, is the opinion of such authorities on the subject as Mr. Wheatley of the Brook-street St. Giles Mission to Discharged Prisoners and of the officers of the Salvation Army barracks, who are constantly seeking to assist discharged prisoners. These men come out of prison in a dazed condition and are too often totally unfit for work. Consequently many are driven by sheer necessity to steal and thus again fall into the hands of the police. This explains the great increase of recidivism, which is another cause of complaint against the present system of prison administration. Certainly reform as well as punishment should be the object of imprisonment, and reform which is unmindful of physiological laws cannot be effective. If a prisoner when discharged is to earn an honest livelihood he must have the health and intelligence to work. Neither the one nor the other can be engendered by solitary confinement and insufficient food and exercise. It is difficult to say how far a criminal is responsible for his actions or how far he is the victim of inherited tendencies and vicious surroundings. To reform such persons great powers of observation, a quick appreciation, and deep knowledge of human character, combined with infinite tact, are necessary. These rare qualities are not easily found, and certainly the ordinary prison gaoler cannot be expected to display such subtle understanding. For the most part gaolers are old soldiers. They are not well paid, and sometimes they are very much overworked. It is natural that they should occasionally vent the ill-humour these hard conditions engender on the prisoners in their charge. Perhaps if the truth could be ascertained it would be seen that many a prisoner has been punished for infringing prison discipline or for committing some other offence of which he would not have been guilty if he had been treated in a more judicious manner by his gaoler. It may also happen that prisoners fail to obey rules &c., not from malice prepense, but because they are in a semi-demented condition. But the gaoler who is a mere military martinet is not able to distinguish between a weak-minded and rebellious or disobedient prisoner. The gaoler does not pause to make psychological studies, he just carries out the rules with rigid inflexibility, as if every human being was identically alike. As a result, evil dispositions are aggravated instead of being checked and modified. Then follows punishment upon punishment, notably solitary confinement, with the encouragement it gives to the secret vices that lay the foundation of insanity. Thus, under the present system of management, as already stated, the prevalence of insanity in local English prisons has doubled, the death-rate is nearly twice as high as in Irish prisons, and recidivism is on the increase. Evidently there is urgent need of reform, and it is desirable that the Parliamentary Committee should press forward its inquiry and suggest practical remedies.

ARMY MEDICAL DEPARTMENT REPORT FOR 1893, WITH APPENDIX.

[SECOND NOTICE.]

IT is of course impossible to do more than refer to some of the more salient points in noticing a voluminous official report of this kind, and while that for 1893 may be said to be, upon the whole, of high average merit, there is happily no important epidemic or serious outbreak of disease recorded

for that year, or any subject of such special interest as to claim particular attention. The health of the troops serving in the United Kingdom was favourable. The most important statistical ratios of sickness and mortality are shown in the following table, calculated as regards deaths and invaliding on strength including men detached :—

	Ratios per 1000 of strength.			
	Admissions.	Deaths.	Invaliding.	Constantly sick.
England and Wales...	790·8	5·43	16·14	46·90
Scotland	628·5	6·11	18·06	26·92
Ireland	652·5	4·13	14·11	38·21
United Kingdom...	751·6	5·13	15·70	44·10

Compared with 1892, the admission-rate in England and Wales shows a decline of 1·6 per 1000, the death-rate an increase of 1·00, and the constantly-sick rate an increase of 1·95. While the admission-rate has declined by 13·2 per 1000, the death and constantly-sick rates show a fractional increase as compared with the average ratios of the preceding seven years. The admission, death, and constantly-sick rates in Scotland are all rather higher than those of the previous year, but less than those of the preceding seven years, except the death-rate, which shows an increase of 0·59 per 1000. In Ireland there is a decline in the admission, death, and constantly-sick rates of 48·5, 0·09, and 0·93 per 1000 respectively, and there is also a decrease in the admission, death, and constantly-sick rates in 1893 as compared with those for the previous seven years. Taking the United Kingdom as a whole, the admission-rate shows a decline of 9·7 per 1000, as compared with 1892; the death and constantly-sick rates have, however, slightly increased—0·75 and 1·35 respectively; but there is a decrease in all these rates as compared with the previous ten years.

In England and Wales there were 103 admissions and 16 deaths in 1893 from enteric fever; in Scotland only 3 admissions, and in Ireland 45 cases and 6 deaths. The largest number of cases in any station was at Aldershot—49 cases and 9 deaths. Most of the cases arose in the Marlborough lines, and their occurrence, we are told, became the subject of investigation by a special committee. Out of 45 cases reported in Ireland 25, with 3 deaths, occurred in Dublin. "The exact cause is not known, but Dublin, as stated in last year's report, is notoriously unhealthy where enteric fever is concerned."

Taking all forms of venereal disease together the admissions from this cause were 19,484, and the average number constantly sick 1670·02, the total admission ratio being 194·6 per 1000, and the constantly-sick rate 16·68. This represents a very large amount of inefficiency, but as compared with previous years the rates seem to have, on the whole, decreased. The greatest prevalence of these diseases was in the Channel Islands, the Home, Eastern, Woolwich, Western, and Dublin districts. The lowest rate was in the Cork district—86·3 per 1000. An increase in the admission-rate, as compared with last year, is observed in eight districts, especially in Belfast, Dublin, and Aldershot.

We need not do more than refer to the tables which have been prepared to show the influence of age and length of service on sickness, mortality, and invaliding among the troops in the kingdom. The following table shows the rates of sickness and mortality of troops quartered in the large camps at Aldershot, Colchester, Shorncliffe, the Curragh, &c., as compared with those of troops stationed in thirty-seven large towns :—

1893.	Average annual strength.	Ratio per 1000 of mean strength.		
		Admissions.	Deaths.	Constantly sick.
Camps...	24,733	783·0	3·92	48·32
Towns	53,882	802·2	5·36	48·26

At p. 13 there is a table showing the vital statistics of each arm of the service, in which the relatively high admission, invaliding, and constantly-sick rates of the Foot Guards are apparent.

There is not much to detain us in the sanitary reports of the home stations. The principal medical officer, Aldershot, considers that the occurrence of enteric fever at that camp was connected with faulty drainage, more especially in the North Camp, where several of the cases appear to have been due to sewer air, and the insanitary state of some of the huts. These huts are stated to be fast disappearing, and with this and the remodelling of the whole system of drainage consequent on the completion of the new brick barracks and married quarters it is hoped that local insanitary causes will be removed. The new Tournay barracks are, it seems, temporarily used as a hospital pending the construction of the new one that has been authorised. The medical officers' quarters in these lines have, it is stated, been condemned, and the present sewage farm is to be closed and a new one at a greater distance from the camp is to be provided. The drainage of Wellington lines was being completely reconstructed. *En passant* we may remark that the coir mattresses in use are stated to have been unfavourably reported on, as they are more difficult to clean than the straw palliasses. There is one subject alluded to in some of the sanitary reports which we regard as highly important for the health and comfort of the soldier—viz., the provision of rooms for drying his clothing when saturated with wet, as it often is; and we think, too, that there should be a sufficient supply of hot water for baths and ablution rooms in barracks and camps to enable soldiers to have a warm bath periodically during the cold weather. It is not at all likely that soldiers will use the kind of baths provided at present during such Arctic weather as we have recently had, for example.

Turning to the health of the troops serving in the Mediterranean, there is not much to be said. The results as regards Gibraltar, where the average strength was 4743, are satisfactory; the mortality was only 2·74 per 1000, which shows a decrease on the average for the previous ten years, although the admission and constantly-sick rates were somewhat higher in 1893. Whenever a case of enteric fever occurs the system uniformly adopted is for the medical officer in charge of the barracks, in conjunction with an officer of the Royal Engineers, to endeavour to trace out its cause. The great sanitary problems in Gibraltar are the prevention and mitigation of the overcrowding of a dense population, the provision of a good and adequate water-supply, and an improved system of drainage. The project of constructing a sewage outfall on the eastern beach, the principal medical officer tells us, has been abandoned, and a new scheme, with outfall at Europa Point, is likely to be adopted. A large non-dieted hospital has been opened at the Town Range Barracks. The disinfection of clothing and bedding is carried out by the Colonial authorities under a fixed scale of charges, and there is no doubt that this is by far the simplest and most economical method of procedure for the troops wherever the means are already available.

Malta, with an average strength of 7161, had a death-rate during 1893 of 10·47 per 1000. An outbreak of enteric fever took place at Pembroke Camp chiefly among the men of the 1st Gloucestershire Regiment, recently arrived from England. A commission reported, after careful investigation, that the outbreak was attributed to contaminated water. There were 171 admissions for ague, 121 for remittent fever, and 2 for malarial cachexia, but no deaths. Ague is not a disease of Malta, and the prevalence of this fever in the command was attributable to the arrival of a regiment from Mauritius and troops from India, who brought the disease with them. During the summer months half the troops, we are told, sleep under canvas—an excellent practice, which would do no harm if extended to all of them. Cyprus, which is now given up as a military station, was healthy, and has always proved so during our occupation of it, except at first, when the great sickness was mainly attributable to the exceptional character of the season, and still more to our own want of care and forethought in making proper provision.

Passing over Canada, the West Indies, and Western and South Africa, we come to the Mauritius, where the average strength of the garrison was happily small (551), for it is a most malarious and unhealthy station, especially as far as Port Louis is concerned. Malarial fevers, which have been for many years past very prevalent, gave rise in 1893 to no less than 607 admissions and 5 deaths, giving ratios of 110·6 per 1000 admissions and 9·07 deaths. Of the 607 admissions, 447 were cases of remittent fever and 160 cases of ague. There were 82 invalids sent home during the year, amounting to 148·82 per 1000 of strength; of these, however,

only 15, or 27·22 per 1000, were finally discharged. The greatly increased prevalence of malarial fever in 1893 is attributed to the severe rainfall and mass of vegetable débris washed down by the hurricane in the preceding year. There is probably no place that affords better opportunities for the study of the relation of Laveran's parasite to malarial fever than the Mauritius, and we trust that we shall be furnished later with the results of the examination of the blood of patients exhibiting the phenomena of these fevers. The pathological cause should be determined beyond all doubt, and it should also be ascertained whether the cyclical growth and development of the parasite correspond with the cyclical periodicity of the fever, and whether the appearance of the young amœbæ in the corpuscles and that of their sporulation correspond with the apyrexial and fever accession periods of the disease.

A considerable part of the report is, of course, devoted to the health statistics and sanitary state of the European troops in India. The prevalence of venereal diseases and the grave amount of inefficiency to which they give rise, as well as the prevalence of enteric fever among our troops moving in India, naturally receive a good deal of attention.

The average strength of the warrant officers, non-commissioned officers, and men in India for 1893 was 69,865; the admissions into hospital were 98,983; and the deaths 919, of which 881 took place in India, and 38 (being those of invalids) on the passage to or after arrival in England. The rates of sickness for each of the three commands is shown in the following table:—

	Ratio per 1000 of mean strength.			
	Admitted.	Died.	Invalided home.	Constantly sick.
Bengal	1468·4	14·95	26·07	90·63
Madras	1232·2	9·81	26·22	85·01
Bombay	1434·8	10·73	22·04	75·34
Total	1416·8	13·15	25·32	86·60
Ten years, 1883-1892.	1448·3	15·21	25·51	76·22

The section of the report devoted to Egypt is interesting. The general health of the troops in this command during the year was not very satisfactory and compares unfavourable with that of the previous year. There was a slight decrease in the death-rate, but the sick-rates are increased, more especially at Cairo. The greater part of the troops had only arrived in the country during the year. The sanitary state of the barracks and hospitals was well attended to and satisfactory, which cannot be said, however, of places outside them in their vicinity.

We have only a very brief space left for the papers in the appendix to the report. That on the progress of hygiene is well worth reading, as it briefly summarises the chief points which have attracted attention during the year and furnishes the reader with a good deal of useful information concisely stated; and the report on the Congress at Budapest also contains a large amount of valuable material, not only about the congress, but about the systems of water-supply and sewage disposal &c. of various places which the Professor of Military Hygiene visited *en route*. Brigade-Surgeon-Lieutenant-Colonel Stevenson, Professor of Military Surgery, and Surgeon-Major Whitehead, the Assistant Professor, contribute an excellent paper on the operations performed at the Royal Victoria Hospital, Netley, during 1894, accompanied with a description of, and comments upon, the more interesting and striking cases. Surgeon-Lieutenant-Colonel W. S. Pratt, gives a good and instructive report of the Eighth Congress of the Association Française de Chirurgie, held at Lyons in September last, with a set of diagrams. Surgeon-Major James, contributes a very full and elaborate report, illustrated by diagrams, of the late epidemic of bubonic plague at Hong-Kong, which seems to have been very carefully and well prepared; and the volume contains, in addition, several papers of surgical interest by other members of the Army Medical Staff.

VACCINATION GRANT.—Mr. James T. T. Ramsay, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., public vaccinator for Witton and Livsey, Blackburn Union, has been awarded the Government grant for three years' efficient vaccination.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN thirty-three of the largest English towns 6676 births and 6683 deaths were registered during the week ending March 2nd. The annual rate of mortality in these towns, which had increased in the five preceding weeks from 18·7 to 29·6 per 1000, further rose last week to 32·9. In London the rate was as high as 38·5 per 1000, while it averaged 28·9 in the thirty-two provincial towns. The lowest rates in these towns were 15·1 in Derby, 16·1 in Norwich, 17·0 in Sunderland, 18·5 in Gateshead, and 19·1 in Leicester; the highest rates were 38·5 in London, 39·2 in Plymouth, 43·4 in Halifax, 49·2 in Nottingham, and 55·5 in Liverpool. The 6683 deaths included 330 which were referred to the principal zymotic diseases, against 316 and 317 in the two preceding weeks; of these, 113 resulted from whooping-cough, 67 from measles, 47 from diphtheria, 36 from diarrhœa, 35 from "fever" (principally enteric), 30 from scarlet fever, and 2 from small-pox. No fatal case of any of these diseases occurred last week in Swansea, Derby, or Huddersfield; in the other towns they caused the lowest death-rates in Hull, Bristol, and Bradford; and the highest rates in Liverpool, Manchester, Bolton, Salford, and Brighton. The greatest mortality from measles occurred in Plymouth, Bolton, Preston, and Sheffield; from whooping-cough in Brighton, Cardiff, Birkenhead, Manchester, and Halifax; and from "fever" in Salford. The mortality from scarlet fever showed no marked excess in any of the large towns. The 47 deaths from diphtheria included 31 in London and 2 each in West Ham, Birmingham, Manchester, Salford, and Oldham. One fatal case of small-pox was registered in London and 1 in Liverpool, but not one in any other of the thirty-three large towns. There were 68 cases of small-pox under treatment in the Metropolitan Asylum Hospitals and in the Highgate Small-pox Hospital on Saturday last, the 2nd inst., against 56, 67, and 75 at the end of the three preceding weeks; 8 new cases were admitted during the week, against 18, 18, and 19 in the three preceding weeks. The number of scarlet fever patients in the Metropolitan Asylum Hospitals and in the London Fever Hospital at the end of the week was 1621, against 1667, 1657, and 1658 on the three preceding Saturdays; 143 new cases were admitted during the week, against 149, 159, and 152 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 430, 840, and 1120 in the three preceding weeks, further rose to 1449 last week, and exceeded by as many as 945 the corrected average. The causes of 122, or 1·8 per cent., of the deaths in the thirty-three towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Bristol, Bolton, Oldham, Bradford, and in seven other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Preston, Halifax, Sheffield, and Hull.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had increased in the four preceding weeks from 23·9 to 41·1 per 1000, further rose to 42·8 during the week ending March 2nd, and was 9·9 per 1000 above the mean rate during the same period in the thirty-three large English towns. The rates in the eight Scotch towns ranged from 24·9 in Aberdeen and 26·0 in Greenock to 39·1 in Leith and 53·6 in Glasgow. The 1236 deaths in these towns included 51 which were referred to measles, 30 to whooping-cough, 10 to scarlet fever, 9 to diarrhœa, 8 to "fever," 5 to diphtheria, and 2 to small-pox. In all, 115 deaths resulted from these principal zymotic diseases, against 115 and 118 in the two preceding weeks. These 115 deaths were equal to an annual rate of 4·0 per 1000, which was 2·4 above the mean rate last week from the same diseases in the thirty-three large English towns. The fatal cases of measles, which had increased from 26 to 54 in the three preceding weeks, were 51 last week, of which 21 occurred in Edinburgh, 15 in Glasgow, and 13 in Aberdeen. The 30 deaths referred to whooping-cough were within 6 of the number in the preceding week, and included 18 in Glasgow and 4 in Leith. The fatal cases of scarlet fever, which had been 6 and 4 in the two preceding weeks, rose again to 10 last week, of which 4 occurred in Glasgow and three in Edinburgh. The 8 deaths referred to different forms of

"fever" exceeded those recorded in any recent week, and included 2 each in Edinburgh, Dundee, and Paisley. The fatal cases of diphtheria, which had been 6 and 7 in the two preceding weeks, declined to 5 last week, of which 3 occurred in Glasgow. The 2 deaths from small-pox were recorded in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 214, 345, and 517 in the three preceding weeks, further rose to 544 last week, and exceeded by as many as 426 the number in the corresponding week of last year. The causes of 111, or 9 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had increased in the three preceding weeks from 31·9 to 35·1 per 1000, declined again to 32·7 during the week ending March 2nd. During the past nine weeks of the current quarter the death-rate in the city has averaged 33·0 per 1000, against 24·0 in London and 26·8 in Edinburgh. The 219 deaths registered in Dublin during the week under notice showed a decline of 16 from the number in the previous week, and included 6 which were referred to the principal zymotic diseases, against numbers declining from 19 to 10 in the three preceding weeks; of these, 4 resulted from small-pox, 1 from whooping-cough, and 1 from "fever," but not one either from measles, scarlet fever, or diphtheria. These 6 deaths were equal to an annual rate of 0·9 per 1000, the zymotic death-rate during the same period being 1·5 in London and 5·9 in Edinburgh. The fatal cases of small-pox, which had been 8 and 6 in the two preceding weeks, further declined to 4 last week, a smaller number than in any week since November last. The mortality from whooping-cough and "fever" corresponded with that recorded in the preceding week. The 219 deaths in Dublin last week included 40 of infants under one year of age and 66 of persons aged upwards of sixty years; the deaths both of infants and of elderly persons showed a slight decline from the numbers in the preceding week. Nine inquest cases and 5 deaths from violence were registered; and 69, or nearly a third, of the deaths occurred in public institutions. The causes of 17, or more than 8 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ARMY MEDICAL STAFF.

Surgeon-Captain James Rocheid Forrest from half-pay, to be Surgeon-Captain, vice J. G. Deacon, M.D., retired.

INDIA AND THE INDIAN MEDICAL SERVICE.

The *London Gazette* announces the Queen's approval of the following admissions to Her Majesty's Indian Medical Service: To be Surgeon-Lieutenants: *Bengal:* Charles John Milne; Algernon Francis Stevens; Clement Henry Bensley; Francis Hammond Watling; John Duncan McMillan; Arthur Gwyther; Edgar John Morgan; Alfred Edward Joseph Ward; William Carr; John Archibald Hamilton. *Madras:* Frank Wall; Charles Montague Mathew. *Bombay:* Samuel Evans; James Haldane McDonald. The services of Surgeon-Captain W. Vost, M.B., C.M., I.M.S. (Bengal), are placed permanently at the disposal of the Government of the North West Provinces and Oudh. Surgeon-Captain C. H. Bedford, M.D., I.M.S., Bengal Establishment, is appointed to be Medical Officer, Lawrence Military Asylum, Sanawar, vice Surgeon-Lieutenant H. M. Earle, who has vacated.

NAVAL MEDICAL SERVICE

Fleet-Surgeon John Stephen Dobbyn, M.D., has been placed on the Retired List, with permission to assume the rank of Deputy Inspector-General of Hospitals and Fleets. The undermentioned Surgeons have been promoted to the rank of Staff-Surgeon in Her Majesty's Fleet:—Timothy Joseph Crowley, M.D.; Bassett Charles Edward Fitzgerald Gunn; Donald Templeton Hoskyn, M.B.; John Evans Penn; Robert Howard Nicholson; John Leslie Barrington.

The following appointments are notified:—Fleet-Surgeons: R. Grant to the *Crescent* and R. D. White to the R. M. Division, Portsmouth. Surgeons: G. G. Borrett to the *Pembroke;* E. E. P. Tindall to the *Hawke;* R. C. Munday to the *Defiance;* H. W. G. Doyne and J. B. Jameson to the *Crescent;* A. G. Wildey to the R. M. Depôt, Walmer; C. H. Upham to the *Vivid*, for Plymouth Hospital; and W. Bowden, D.S.O., to the R. M. Division.

VOLUNTEERS.

Rifle: 1st Volunteer Battalion, the King's Own (Royal Lancaster Regiment): Richard Oxley Bowman, M.D., to be Surgeon-Lieutenant. 1st (City of Bristol) Volunteer Battalion, the Gloucestershire Regiment: James Young, M.D., to be Surgeon-Lieutenant. 2nd Volunteer Battalion, the Duke of Cambridge's Own (Middlesex Regiment): Surgeon-Lieutenant H. G. G. Wilkins, to be Surgeon-Captain. 9th Lanarkshire: Charles Symington, M.B., to be Surgeon-Lieutenant. 1st Dumbartonshire: Surgeon-Captain J. McLachlan, M.B., resigns his commission. 1st Cadet Battalion, the Buffs (East Kent Regiment): Charles Walter Scott, M.B., to be Acting Surgeon.

VOLUNTEER OFFICERS' DECORATION.

The Queen has conferred the Volunteer Officers' Decoration upon the undermentioned Officers of the Volunteer Force. *North-Western District: Engineers:* 2nd Lancashire (late St. Helens) Volunteer Engineers: Surgeon-Lieutenant-Colonel Egerton Francis Hall, M.D. 2nd Cheshire (Railway) Volunteer Engineers: Surgeon-Lieutenant-Colonel James Atkinson. *Southern District: Rifle:* 1st Wiltshire Volunteer Rifle Corps: Surgeon-Major (ranking as Lieutenant-Colonel) George Christopher Tayler, M.D., retired. *Scottish District:* 4th Volunteer Battalion, the Cameronians (Scottish Rifles): Surgeon-Major Johnstone Macfie, M.D.

DEATHS IN THE SERVICES.

Deputy Inspector-General Lyall, R.N.

By the death of Dr. David Lyall, Deputy Inspector-General of Hospitals and Fleets, at Cheltenham on the 25th ult., at the age of seventy-seven, the naval medical service has lost an officer of scientific attainments and reputation. The deceased officer entered the navy in 1839, after having passed the Royal College of Surgeons, Edinburgh, and taken the M.D. degree of the University (King's College) of Aberdeen, and was soon appointed assistant surgeon and botanist of the Antarctic Expedition under Sir James Ross. He was also surgeon and naturalist in the Arctic Expedition under Sir E. Belcher in 1852–54, for which he had the medal, and subsequently served in the Baltic campaign in 1855 (medal). Dr. Lyall was a Fellow of the Linnean Society. He was in due course appointed Fleet Surgeon, and in 1873 Deputy Inspector-General of Hospitals and Fleets, when he was placed on the retired list. In 1884 he was awarded a Greenwich Hospital pension.

Surgeon-General Clarke, I.M.S.

We regret to announce the death of Surgeon-General J. J. Clarke, Bengal Medical Service (retired list), on Feb. 23rd last, whilst on a visit at Leura, Toorak, Melbourne. The deceased officer entered the Indian Medical Service in 1853, and retired with the rank of surgeon-general in 1884, after a distinguished military career during the Indian Mutiny, throughout the whole of which he had served with the force under Generals Havelock, Outram, and Neill. He was with the Artillery and attached to the battery commanded by Sir William Olpherts, V.C., which won great distinction for its services. The late Surgeon-General Clarke was present at numerous actions, the relief and defence of Lucknow, the engagements under Sir James Outram and Lord Clyde, and rendered gallant services at Mungulwar, at Alumbagh, and at the Motee Mahal; he also served as principal medical office in the Akha Expedition and was mentioned in despatches. In 1882 he was awarded a good service pension.

Surgeon-Major-General Thomas Rudd.

Surgeon-Major-General Thomas Rudd, M.D. Edin., died at San Remo on Feb. 24th. He served with the 8th Hussars during the Indian Mutiny in 1857–58, and was present at the capture of Kotah and at the battles of Kotaria and Khooshana (medal with clasp). He also served in the Afghan War of 1878–80 (medal).

PROPOSED TESTIMONIAL TO SURGEON-GENERAL SIR JOSEPH FAYRER, K.C.S.I., Q.H.P., M.D. EDIN., F.R.S.

As we have already announced, a movement is on foot to present a testimonial to Sir Joseph Fayrer on his retirement as Physician to the Indian Council, President of the Indian Medical Board, and Member of the Senate of the Army Medical School. The testimonial is to take the form of a portrait to be painted by an eminent artist, to be placed in the officers' mess at Netley, with a replica for Lady Fayrer. Should the fund permit, a reproduction of the portrait will

be sent to each subscriber. Subscriptions, limited to 10*s.* 6*d.*, may be sent to Surgeon-Captain W. W. Webb, M.D., the honorary secretary, at Odstock, Netley Abbey, Hants.

THE OPIUM COMMISSION.

The report of this Commission will soon be in circulation. Its publication is no doubt anxiously awaited in India, as the subject is one gravely affecting the social life, habits, and customs of the native population and the finances of that country. Meanwhile, it must be very satisfactory to the Government of India to have the assurance of the Chancellor of the Exchequer that the cost of the Commission is to be borne by the English and not by the Indian revenue. We think that most people will concur in the justice and expediency of this decision.

THE ARMY MEDICAL STAFF IN INDIA.

In future medical officers proceeding to India will receive intimation of the command to which they will be posted for service in that country. It will be remembered that some time ago it was a subject of complaint that they were put to inconvenience by not knowing the presidency in which they would have to serve. This has now been rectified by the Secretary of State for War and India Office.

THE ARMY ESTIMATES.

The Navy and Army Estimates for the year have just been issued. We hope to be able next week to give a brief statement of these estimates as regards the medical services.

INFLUENZA AT ALDERSHOT.

The troops at Aldershot, as might have been expected, have not escaped the prevailing epidemic. A large number of sufferers from influenza have been under treatment as well as cases of disease of the respiratory system.

The hired transport *Victoria* arrived at Portsmouth on the 27th ult. She brought home 300 patients for the Royal Victoria Hospital, Netley.

Correspondence.

"Audi alteram partem."

THE UNIVERSITY OF CAMBRIDGE AND THE EXTENSION OF SCIENCE TEACHING.

To the Editors of THE LANCET.

SIRS,—May I call attention to an advertisement, which appears in the columns of THE LANCET of this date, of an invitation to qualified medical men to come up to Cambridge for a course of demonstrations and lectures. It seems to us there must be many men resident out of reach of large schools who would derive much advantage from seeing the work done in our laboratories and hearing what is going on in modern medicine and the ancillary sciences. The fees, including board and lodging (probably in college), are fixed as low as possible. The University professors have generously offered their services, and will open their laboratories for the demonstrations, and some cases of special clinical interest will be shown by members of the honorary staff of the hospital. It will not be possible, of course, to arrange for private workers on such an occasion, but if the opportunity seems to be valued we hope to repeat the invitation in future years, and perhaps to extend the time a little.

Believe me, Sirs, yours faithfully,

T. CLIFFORD ALLBUTT,
Regius Professor of Physic in the University of Cambridge.

Cambridge, March 7th, 1895.

P.S.—It is of great importance to us to receive early applications that we may know how to prepare for our visitors.

"THE TREATMENT OF INFLUENZA."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of March 2nd Dr. Burney Yeo directs attention to the value of quinine in the treatment of influenza. May I venture to suggest that since quinine is not completely excreted from the tissues for some days, it is not necessary, in order to produce its specific effect, to give the drug in such large doses as to produce cerebral symptoms? Three to five grains given in an effervescing draught every three or four hours markedly controls the course of the disease and rarely gives rise to "cinchonism." The large doses of quinine given on the continent in this disease appear to be quite unnecessary and not altogether devoid of danger, for I have seen fifteen grains given every three hours produce marked cardiac depression, particularly in elderly people. Thus, whilst quinine given in these comparatively small doses in the form of an effervescing saline draught undoubtedly in many cases exercises a controlling influence on the course of the disease, yet the pyrexia with its attendant symptoms may be but slightly relieved, and for this purpose three to five grains of phenacetine combined with a few grains of citrate of caffein acts as a safe and efficient antipyretic and anodyne.

I am, Sirs, yours faithfully,

J. H. MARSH, M.R.C.S., L.R.C.P. LOND.

The Infirmary, Macclesfield, March 2nd, 1895.

To the Editors of THE LANCET.

SIRS,—I read with much interest Dr. Yeo's valuable letter on the Treatment of Influenza in last week's issue of THE LANCET, and should like to endorse what he says in reference to the deleterious effects of antipyrin in the treatment of this scourge. In comparing notes of the cases which have presented themselves for treatment during the past five years it has forcibly struck me that the mortality has been gradually diminishing, and the period of convalescence shortened in each successive epidemic. I do not consider this due to any lessened virulence of the much-maligned bacilli, but to the fact that antipyrin and similar depressants are being withheld in the treatment of this disease. During the first epidemic five years ago I noticed the great prominence given to pneumonia as a complication by all writers on influenza. My own firm conviction is, and has been all along, that the antipyrin treatment was entirely responsible in many cases for the onset of the pneumonia, and that ordinary cases of influenza with bronchitic trouble ended frequently in broncho-pneumonia when antipyrin was administered. During the past three epidemics I have not seen a single case of pneumonia complicating influenza excepting in asthenic cases in very old persons. So long as we have therapeutic agents such as quinine and alcohol we need not be afraid to combat this year's epidemic.—I am, Sirs, yours faithfully,

FRANCIS WILLIAM GRANT, M.D., B.Sc., C.M. Edin.

Elgin, March 4th, 1895.

"PROFESSOR W. R. SMITH AND THE MEDICAL SUPERINTENDENTS OF THE HOSPITALS OF THE METROPOLITAN ASYLUMS BOARD."

To the Editors of THE LANCET.

SIRS,—My attention has been drawn to certain editorial remarks in THE LANCET of the 2nd inst. dealing with a report in the *Times* of a speech made by me as a member of the Metropolitan Asylums Board on Saturday, Feb 2nd. I regret that you have considered it necessary to allude to the subject, but as your remarks may give an erroneous impression as to the facts of the case I shall be obliged by your kindly inserting this letter. In the first place it is true that I called upon you on Feb. 27th, and this to express my regret that I had not received your letter of Feb. 6th, and further to state that your letter dated Feb. 21st I had only received that morning, consequently I had not been able to reply to them. I think these facts should have been mentioned, as otherwise some discourtesy on my part would be inferred. The main point at issue cannot I think be properly appreciated unless considered in the light of a knowledge of the action of the Metropolitan Asylums Board relative to the diagnosis and treatment of diphtheria, in which I have taken a somewhat prominent part. The managers have made arrangements by which a bacteriological examination shall be made of all cases of diphtheria, both upon their admission and before their discharge from their hospitals, and in addition—with the object of providing a proper supply of antitoxic serum—have placed stabling &c. at the disposal of the director of the Research Laboratories of the Royal

Colleges of Physicians and Surgeons consequent upon an arrangement made between the Asylums Board and the committee of management of the Laboratories. Further, to ensure that proper statistical information should be forthcoming at the proper time, the medical superintendents of the hospitals and the director of the Research Laboratories of the Royal Colleges were requested to submit a form upon which such records should be kept. This they did, and the same was approved by the subcommittee, to whom the whole matter has been referred. Throughout, as I think is known, great opposition has been shown to these projects, on the one hand by those who adopt the views of the Anti-Vivisection Society, and by others who wished the services of a particular institution to be engaged. In January notice was given of a motion relative to statistical returns on the subject of the antitoxic serum treatment by a gentleman who had throughout in this particular assumed an antagonistic position to the action of the Board; the motion came on for discussion on Feb. 2nd, and at the same time an amendment to the proposition of which I had given notice. Upon entering the council chamber my attention was at once drawn to THE LANCET, which published that day what purported to be a report from the director of the institution to which I have alluded, and which report embodied certain statistical returns in the form of reports from some of the hospitals of the Asylums Board. These returns had never been before the subcommittee before mentioned, and of which I am a member, nor had they been placed before the committees of the various hospitals concerned; in short, information which many members of the Board were most anxious to obtain could only be elicited from an official report of a body with which the Asylums Board had no connexion.

If I remember rightly, the words I used on Feb. 2nd were to the effect that I felt great regret that such information had been given, that in my judgment such action was not only most indiscreet but tended to give the impression of disloyalty to the Board. These words rightly express my feelings to-day. Of course, as must be obvious, every individual member of a board is responsible alone for any expression of opinion to which he may give utterance; but in this particular case it should now be known that at the first meeting of the General Purposes Committee after Feb. 2nd—a committee consisting of the whole of the members of the Board—it was unanimously decided to send a letter to the medical superintendents on the subject, and with their replies I think it would have been prudent to have allowed the matter to rest.

It is true, as you have rightly pointed out, that I myself fill certain public positions, and consequently I cannot be unmindful of the difficulties and responsibilities of others similarly placed; but in these positions I recognise a duty to the authorities I serve, and I at the same time do not ignore the fact that members of public bodies have duties to discharge, not alone to those who elect them, but also to themselves if they ever hope to exercise any proper influence.

I am, Sirs, yours faithfully,

WILLIAM R. SMITH.

The Metropolitan Asylums Board, Norfolk House, Norfolk-street, W.C., March 6th, 1895.

To the Editors of THE LANCET.

SIRS,—The annotation under the above heading in THE LANCET of March 2nd has considerably surprised me, and I feel it demands some further comment, though, no doubt, the *Times* reporter is quite able to take care of himself. I can only say that Professor Smith must have a very short memory regarding his own speeches, for not only am I quite positive that he "censured" the action of some of the medical superintendents, but also that he did so in very measured language, and so much did it impress me that I rose in my place immediately after he had spoken and stated that I did not think these officers were deserving of censure by him, considering the circumstances under which they had given some information on antitoxin, not to the leading medical papers, as stated by Professor Smith, but, as I understood, to the superintendent of the British Institute of Preventive Medicine.

I am, Sirs, yours faithfully,

A. B. R. MYERS,
Brigade-Surgeon-Lieut.-Colonel; Manager, Metropolitan Asylums Board.

March 2nd, 1895

THE STORAGE OF ANTITOXIN.

To the Editors of THE LANCET.

SIRS,—It seems to me that much unnecessary trouble is being taken in the storage and distribution of diphtheria antitoxin by the elaborate precautions which are required so long as it continues to retain its liquid form. I would suggest that in future the liquid antitoxin should, as soon as it has been obtained, be evaporated *in vacuo* over sulphuric acid and stored and distributed in the form of a dry powder, whose exact quantitative relationship to the liquid antitoxin or to the toxin itself could easily be ascertained and stated. There can be no doubt that in this dry form diphtheria and all other antitoxins will retain almost indefinitely their original effects. Were this plan adopted it would also be possible considerably to reduce the bulk of liquid injected under the skin.

I am, Sirs, yours faithfully,

Edinburgh, March 5th, 1895. THOMAS R. FRASER.

THE TREATMENT OF MEMBRANOUS COLITIS.

To the Editors of THE LANCET.

SIRS,—In an interesting paper on Colitis, which appeared in THE LANCET of March 2nd, Dr. Hale White says, when considering the treatment of the membranous form of the disease: "It has been suggested that in a very intractable case it might be justifiable to open the colon high up." In June of last year I performed an inguinal colotomy in the right side on a patient who was passing large quantities of blood with membrane, one complete cast of the bowel being twenty-two inches in length. A month ago I closed the colotomy opening, and later propose to report the case in full. So far the success is complete.

I am, Sirs, your faithfully,

Charles-street, W., March 6th, 1895. SKENE KEITH.

REPORTS OF THE MEDICAL OFFICERS OF HEALTH: A SUGGESTION.

To the Editors of THE LANCET.

SIRS,—Year by year are published valuable reports by the medical officers of health of the various urban and rural sanitary authorities. Many of these reports contain important information and suggestions, the result of practical experience, on the causation and prevention of disease, histories of epidemics, difficulties in carrying out sanitary laws or reforms, and interesting statistical returns. Much of this good work is lost to those interested in sanitary science owing to the difficulty of obtaining such reports, and the time that would be occupied in reading them. No doubt your valuable journal frequently gives extracts from the leading reports upon points under discussion, but I would suggest the publication yearly of a volume giving a *résumé* of all the reports of that year. Such a book would confer great benefit on medical officers of health and those interested in public health. It would form a sanitary history of the year, would show the sluggard what the advanced were doing, and would supply material for the advocates of sanitary reform. I need not go further to prove the practical use of such a publication. The information should be carefully condensed and classified, and advances in sanitary science abroad could be included. This compilation would involve considerable labour and expense, and could hardly be undertaken by a private publishing firm with any prospect of financial success. But as such a publication would be a public gain it might reasonably be brought out by the Local Government Board as a part of the sanitary administration of the country. That Board, too, has special sources of information which could be utilised.

I am, Sirs, yours faithfully,

ANTONY ROCHE, M.R.C.P.I.,
Professor of Hygiene, Catholic University; Examiner, Royal University of Ireland; Fellow of the Sanitary Institute, &c.

91, Stephen's-green South, Dublin, March 2nd, 1895.

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY, LIMITED.

To the Editors of THE LANCET.

SIRS,—We are instructed by the council of the London and Counties Medical Protection Society to inform you that

the letter which appeared in the *Echo* of the 1st inst. under the heading of the "London and Counties Medical Protection Society," and signed "G. B. Mead," was wholly unauthorised by the council, and that in consequence of such letter Dr. G. B. Mead's connexion with the society has been determined.

We are, Sirs, your obedient servants,

LE BRASSEUR AND OAKLEY.
Solicitors for the London and Counties Medical Protection Society, Limited.
12, New Court, Lincoln's-inn, W.C., March 6th, 1895.

*** The following is the text of the letter referred to by Messrs. Le Brasseur and Oakley :—

To the Editor of the *Echo*.

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY, LIMITED.

President: Jonathan Hutchinson, LL.D., F.R.S.
Treasurer: Dr. George A. Heron, F.R.C.P., 57, Harley-street, W.
Hon. Secs.: Dr. George B. Mead, L.R.C.P., Mentmore, Newmarket, Suffolk; Dr. Hugh Woods, B.A., 11, Archway-road, Highgate, N.
Financial Sec.: A. G. R. Foulerton, M.R.C.S., 22, Ovington-gardens, S.W.
Registered Offices: 12, New-court, Lincoln's-inn.

SIR,—It has often struck me what a good thing it would be if the medical profession had a sort of understanding with the editor of a paper like yours that its columns should be open to the discussion of medical questions of a medico-political or ethical character, and both the paper and profession would, I am sure, benefit thereby. The medical papers—*Lancet, Medical Times, Gazette, Press* &c.—all are crammed with cases, papers, and contributions of the most deadly-lively and useless character, to the exclusion of important and personal matters. More than half these so-called contributions are mere puffs of medical notorieties seeking to prey upon the rich public; a large proportion are simply a tissue of lies, and inserted by the editors knowing them to be lies, but being over or under well-known names are inserted. The principal portion of the medical press obtains its income from the sale of these precious papers and from the insertion of quack advertisements of preparations mostly useless and mostly of American origin.

I asked an American the other day if the medical and other papers of America were stuffed with advertisements of drugs, &c., of English origin. "Our people are not such fools as to swallow them," was the reply. If you entertain this idea I should be glad to discuss the matter with you personally.—Yours, &c., G. B. MEAD.
1, Oakley-street, London, S.W., Feb. 27th.

We were perfectly aware that such a letter could not have been authorised by the society, although it was written apparently in the form of an official communication.—ED. L.

To the Editors of THE LANCET.

SIRS,—In consequence of Dr. Mead having ceased to be one of the honorary secretaries of this society, the council request that those having business with the society will kindly address all communications to Dr. Woods, honorary secretary, 11, Archway-road, Highgate, N., excepting communications relating to the payment of subscriptions, which should be addressed to Mr. A. G. R. Foulerton, 22, Ovington-gardens, S.W.—I am, Sirs, yours faithfully,
March 6th. HUGH WOODS, Hon. Sec.

DUNKLEY *v.* LANGLEY.

To the Editors of THE LANCET.

SIRS,—A meeting of some of the medical friends was held here on Thursday to sympathise with Mr. Langley in the unjustifiable action brought against him by the plaintiff for neglect in an obstetric case in which the jury, without hearing all the evidence for the defence, returned a verdict that there was no neglect. A subscription was also started to help to recoup Mr. Langley for the heavy legal expense incurred in defending himself. As it is a case in which all medical men are liable to a similar action being brought against them, Dr. Shaw, of 10, St. Thomas's-street, S.E., will be happy to receive subscriptions, or they may be sent to me. I remain, Sirs, your truly,
Surrey-square, March 6th, 1895. W. RUMBOLL.

The following subscriptions have been received or promised for the Langley defence fund :—

	£	s.	d.
Mr. Collymore	2	2	0
Dr. Milson	2	2	0
Mr. Rumboll	2	2	0
Dr. Shaw	2	2	0
Dr. Williams	2	2	0
Dr. Wills	2	2	0
Dr. Baldwin	1	1	0
Mr. Jacobson	1	1	0
Mr. Arbuthnot Lane ...	1	1	0
Dr. McBride	1	1	0
Dr. F. Taylor	1	1	0

"LIFE ASSURANCE SCHEMES."

To the Editors of THE LANCET.

SIRS,—I am indebted to you for courtesy in allowing me to reply in your columns. May I once more trench upon your kindness for space in reference to your note added to my letter, whence it might be assumed that this office offers no other policy than the one to which you refer? The contrary is the fact. We seek to meet the wants of everyone—those who "want a round sum in hand" as well as those who, being unable to use the "round sum" advantageously, are better protected by an income for a given period, and then the "round sum in hand." The following instance is a striking comment on your remarks as to the value of a "round sum" in hand, and shows that it is not always "a priceless boon." We paid a claim of £2000 to a widow properly entitled. On leaving our office she met a friend, whom she told that she had just received a "round sum" and was desirous of making the best of it. The friend was ready to advise her. He had a good investment, and a certain income. She endorsed our cheque to him. The speculation was so unfortunate that she has never since received any interest and has lost the capital. Thus the care and forethought of the husband were nullified by the money being paid in full to the widow. Would not our debenture policy have proved better in this case? There are all kinds of cases to be met. The pride of this office is that it meets the wants of all, and is ready to facilitate a change from one method to another when changed circumstances render it desirable; and the very objection you make to our debenture policies is provided for in that very contract—e.g., suppose a man with a debenture policy finds that from different causes his estate would be better protected by payment of the full sum assured at death, a simple request to that effect and the office would very readily comply with his wishes and pay his representatives a round sum at his death. I hope you will absolve me from even the spirit of scolding; I only ventured to suggest with the meagre facts before you in relation to our debenture policy you did not quite grasp its provisions. For a man who simply wants temporary cover the debenture policy would not suit his requirements. I ventured to point out in my previous letter that even the scheme to which you alluded was not as cheap as what is known amongst all insurance companies as "term insurance" for those who merely wished temporary insurance.—Thanking you for your courtesy, I am, Sirs, yours truly,

D. C. HALDEMAN,
General Manager of the Mutual Life Insurance Company of New York.
March 5th, 1895.

"REMUNERATION OF RESIDENT OFFICERS AT ST. BARTHOLOMEW'S HOSPITAL."

To the Editors of THE LANCET.

SIRS,—Under the above heading you are permitting a discussion in your columns of what I have always regarded as my one grievance against St. Bartholomew's Hospital. The question is a perfectly simple one: Does the present system secure for the resident appointments the men most fitted to hold them—that is, does it always secure men likely to carry out their duties to the greatest advantage of the sick poor who seek relief at the hospital, and does it secure the men who are most likely to avail themselves of the opportunities for knowledge and skill which these appointments so abundantly afford, such experience being acquired for the future benefit of the public at large? To both these questions I answer emphatically, No. The best men may be, and not rarely are, excluded solely by reason of their poverty. I know of several instances directly to the point, but the question must be largely decided by statements of personal experience. I will state, therefore, that I am one who was excluded from resident appointment of St. Bartholomew's Hospital solely by reason of the *res angusta domi*; while, as evidence that my professional attainments were at any rate equal to those of some of the men who held the appointments, I may, under the veil of anonymity, state the fact that the examiners at the London University (of whom one was the most distinguished physician and teacher at the hospital in question) considered me to be sufficiently qualified in professional work to deserve a gold medal in medicine both at the M.D. and M.B. examinations, with first-class honours in both the other subjects of examination. Like many another, I had to

seek refuge in the provinces, where a comfortable emolument was added to opportunities for practical work perhaps not inferior to those at my *Alma Mater*. The strangest contribution to the discussion is that of the plutocratic "Old House Surgeon," who says that the post being a coveted and a valuable one, the wage is simply a question of supply and demand! Of course, if the intention of the hospital authorities is to make a profit out of these appointments, this is perfectly true and sound economy; but why not put them up to public auction and get the full market price? If, however, the intention is to get the men best fitted to superintend the care of the sick and most likely in later life to apply their opportunities of experience to the public good, then it is difficult to see how the longer purse helps to differentiate the fit from the unfit. Rather would it appear that the one is able to pay for the privilege of acquiring his experience, perhaps at the cost rather than to the advantage of those who seek for aid through the portals opened by Rahere.

I am, Sirs, yours truly,

GOLD MEDALIST BUT NOT HOUSE PHYSICIAN.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Manchester Hospital for Consumption and Diseases of the Throat and Chest.

THE annual meeting was held on the 20th ult., and the financial statement was of a character only too common. The calls on the resources of the hospital were heavy, and the income was not sufficient to meet them. This is the only institution in Manchester where provision is made for the treatment of phthisical cases. The *Manchester Guardian* says: "If there is one district in England in which a charity of the kind has special claims on the practical sympathy of the benevolent it is that which includes Manchester." The deficit on the year amounts to £478 5*s.* 10*d.*, and besides this there is a debit balance of £1098. Limitation of the work was foreshadowed as necessary unless the subscriptions were increased. This would lead to closing some of the wards of the in-patient hospital at Bowdon. It has forty-eight beds and is ten miles from the city, where the air is purer and the climate somewhat more genial than in Manchester. Last year 256 patients were admitted, and the average stay in hospital was sixty-six days. The hospital is well arranged, situated in its own grounds, and freely exposed to the sun; patients in the early stages almost invariably improve, sometimes most notably; and cases of arrested phthisis are not rare. The out-patient department is in Manchester, and last year 9373 cases attended, more than three times the number in 1884. The chairman, in calling attention to the critical financial condition of the institution, said he feared drastic steps would have to be taken to limit the scope of the work; but "he was sure nothing of the kind would be necessary if the public knew the good work the hospital was doing, and particularly in the case of young people, whom they tried to help when the disease was in its early stages."

The Children's Hospital.

The annual meeting of this important institution was held the other day, and the report showed that this popular and well-supported charity was to some extent feeling the pressure of hard times, and that £575 19*s.* 3*d.* were owing to the bankers. At the out-patient department 10,004 cases were treated, while 1164 were admitted to the hospital at Pendlebury. The medical report drew attention to some important points as to infant mortality. In Norway, in rural England, and among the well-to-do populations of our suburbs it averaged 100 per 1000 births, "while in Manchester it amounted to 203 per 1000; and if they took the infant mortality in some of the most congested districts, where poverty, drunkenness, and vice were the commonest, they would find death-rates amounting to 300 and even 500 per 1000. ..... One of the most immediate and efficient causes was the substitution of artificial foods for the mothers' milk." Another was the quality of the milk supplied to our towns. "In many cases it was not merely stale but it came to them contaminated by farmyard refuse and was swarming with more or less injurious organisms." The report goes on to say that the subject of infant life insurance had been carefully inquired into as it affected the out-patients, and that "of the 155 who died no fewer than 105 were insured. The sum insured for was ascertained in 77 cases and amounted to £244 10*s.*, or an average of £3 3*s.* 6*d.* per head. In two cases the sum was as high as £9. In 11 cases only was it stated that some part of the payment consisted of spirits or drink of some kind; but as 22 other children were insured in public-house clubs that were known to give drink in part payment of the claims there could be little doubt that such payment was made in all the 33 cases." And the report very properly goes on to say: "Whatever might be thought of the general question of child-life insurance, this special feature admitted of no defence."

Extension of the Royal Infirmary.

A special meeting of the trustees was held on the 26th ult. to consider this question. Dr. Renaud, the senior consulting physician, proposed a resolution embodying in the main the views of the board of management, of which he is an influential member, in favour of building two lateral extensions, not from the front of the building, as was contemplated in a former scheme, but from half-way down the sides. This would involve encroachment to a considerable extent on the open space round the infirmary, in contravention of the resolution of July, 1892, which said that no such encroachment should take place, and the retention of the somewhat antiquated and objectionable features of the present infirmary. An amendment was proposed to the effect that it was advisable that the increased accommodation required should be provided by the gradual rebuilding of the infirmary on the present site, and that plans should be prepared and submitted to a special meeting of trustees to be held within three months from that date. After considerable discussion the amendment was carried by a large majority, but the seconder of the resolution, on behalf of the board of management, demanded a poll. This does not seem wise on the part of the board, for if it went in favour of the scheme proposed by Dr. Renaud the feeling against covering any more of the ground is so strong that it would most probably have to be abandoned. The architectural effect would be bad, and the scheme is one of inartistic, inefficient patchwork. It is unfortunate also that the amendment requires plans to be so hastily provided by the board. The infirmary stands on the finest site in the city, and the plans for rebuilding, which in the end will be required, should be thrown open to competition under conditions which would lead the most eminent architects to compete. It is believed that almost the whole of the medical staff would prefer reconstruction on the present site, but one or two are in favour of an annexe nearer to Owens College. In time that may be required, but at present the urgent need is that the infirmary should be made equal to the demands on it and worthy of its well-earned prestige.

Manchester and Salford Provident Dispensaries Association.

This is the central body with which all the various branches are associated, and its twentieth annual meeting was held on the 26th ult. From the report it appears that there are 22,464 members (the highest number yet recorded) on the books of the different branches, and that during the year £4043 had been received in subscriptions from the members. "The council again express their acknowledgment of the services which are so efficiently rendered by the medical staff at the various dispensaries," and they hope that any difficulties between the staff of any dispensary and the committee and council may be satisfactorily removed. Nothing appears in the newspaper report of the meeting about the resignation of the whole of the staff of the Pendleton branch, so it does not seem as if in that branch their differences had been adjusted. The chairman described the association as "an institution to give a little help to those who wanted help, and who did not want charity in the sense in which that misused word was generally applied"; and he held that it had greatly lessened the abuse of the out-patient department of the hospitals. He did not touch on the fact that the present working of these dispensaries had estranged the great body of general practitioners, who were at first generally favourable to them; nor did he mention the various departures made from the original scheme, such as the doing away with a wage limit and the admission of all comers, whatever their income; nor did he allude to the recent severance of the connexion between the provident dispensaries and the Infirmary, at the urgent representation of the medical staff, on account of the unfair advantages their members had over all other poor deserving persons. It is strange that the

gentlemen interested in this movement and affording it their patronage and support do not see that these dispensaries are really sweating agencies for obtaining cheap medical attendance for all who choose to join them at the cost of the general practitioner, and that their vicarious philanthropy consists in exploiting the same unhappy person.

March 5th.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Queen's Hospital.

THE annual meeting of the governors of this institution was held on Feb. 27th under the presidency of the Earl of Dudley. The meeting was a large and representative one, the interest of the occasion being the presentation to Mrs. Johnson of a replica of the portrait of her husband, Alderman G. J. Johnson, hung in the board-room of the hospital, in recognition of his services to the institution. The President alluded to the mention in the report of the nursing scheme originated three years ago, and congratulated the committee upon its success. Dr. Carter supported the resolution adopting the report, and stated that it was now nearly twenty years since he became connected with the hospital. In his time unprecedented progress had been made; they had to deal with 20 per cent. more in-patients, and the out-patient department had nearly doubled. The mortality was now 5 per cent., as against 14 per cent. in the earlier period of operative work; the nursing department was also a great benefit. Sir James Sawyer spoke in high terms of the progress made and on the efficiency of the duties performed by all the staff. Alderman Johnson sketched the advance made by the hospital since his first connexion with it thirty-two years ago, and in fitting terms acknowledged the honour done to him and the compliment paid to his wife by the presentation of his portrait. Mr. Burdett, in moving a vote of thanks to the chairman of the committee, laid stress upon the fact that the training of nurses, as it was understood and known in this country and in America at this day, originated in its present form in the Queen's Hospital, Birmingham.

The Countess of Warwick on Nursing.

At a meeting of the Warwick board of guardians held on Feb. 23rd the Countess of Warwick moved the following resolution: "That immediate steps be taken to provide a competent night nurse for the workhouse infirmary, and that it might be well for her to take one or two months' duty in turn with the head day nurse." At present she stated that the nursing at night was left in the hands of the paupers; the result was that the helpless and sick were left very much to the tender mercies of uninstructed inmates for the night—a very unsatisfactory state of things. She mentioned that she had recently visited the Birmingham workhouse infirmary, which was conducted like a hospital, with 1500 beds and splendid arrangements, and had studied the paper which the matron had read at the conference the previous week. The Mayoress of Leamington (Mrs. Thursfield) seconded the resolution. A long discussion followed, and ultimately the motion was carried, it being decided to advertise for a night nurse with a midwifery certificate at £30 a year and rations.

A Novel Excuse for Adulteration.

A milkman was recently summoned for selling milk unusually diluted with water. The excuse given was that the snow had fallen from some roof into his cans and so caused the additional water to be present. He failed to convince the magistrates of this ingenious defence and was duly fined.

Birmingham General Dispensary.

At the annual meeting of subscribers held on Feb. 27th the committee reported that the income in 1894, including a balance of £69 14*s.* 11*d.*, amounted to £11,863 8*s.* 7*d.*; the expenditure was £11,469 18*s.* 5*d.* The total number of patients admitted by tickets was 32,097, showing a decrease of 1150; the average cost of patients was the same as in 1893—viz., 3*s.* 11½*d.* Of the cases and accidents treated without tickets there were 4471. The total number was 36,568. The Mayor, Alderman Fallows, was elected President, Dr. Rickards consulting physician, and Mr. Barling consulting surgeon. The various votes of thanks were passed.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The Edinburgh Medico-Chirurgical Society.

THE third night of the discussion at this society was on Feb. 26th. The meeting was held in the Royal College of Physicians, as the hall in which the society usually meets was not available. Dr. G. A. Gibson opened the discussion, and confined his remarks to the treatment of cardiac pain. Dr. James gave expression to doubts he had on the treatment of cardiac cases. Dr. G. W. Balfour was given another opportunity of speaking, and dwelt upon the more general aspects of cardiac treatment. Professor Fraser replied, and expressed his gratification at the interest which the discussion had raised.

Health of Edinburgh.

The death-rate of Edinburgh is again high, reaching 34 per 1000, while in Leith it is over 39 per 1000 for the past week. Of the deaths 2 were from small-pox. The intimations included 9 cases of small-pox, 42 of scarlet fever, and 569 of measles. Influenza is still very prevalent, and while, as a general rule, it is comparatively mild, it has brought in its train pneumonia and bronchitis, and these are claiming their victims, especially amongst the aged.

Death of Professor Blackie.

By the death of Professor Blackie Edinburgh and the University, and, indeed, Scotland, have lost one of their most unique figures and most prominent personalities. He was as well known in medicine as in arts, and when he was in the active performance of his duties as Professor of Greek there was not a more generally known figure about the University than his. He is to be accorded a public funeral, and the University shuts its class-room doors for the day.

High Death-rate in Glasgow.

In the past fortnight the death-rate of the city has reached the highest point for many years: 54 per 1000 last week, and 51 per 1000 the week before, while the figures for the three preceding weeks were 43, 32, and 26. As a contrast, it may be noted that the rate in the week of 1894 corresponding to last week was only 19, and in 1893 it was 27. Dr. Russell ascribes this excessive mortality to the severity of the winter, diseases of the lungs being responsible for 40 per cent. of the total deaths, while zymotic diseases have diminished rather than otherwise. We have recently had exactly the climatic conditions which always increase the Glasgow death-rate enormously—namely, a temperature continuously below the freezing point, accompanied by a dense fog, which was only dispelled from time to time by a bitter east wind, the cold period also being preceded by a four-week period in which the temperature was rarely more than one or two degrees above freezing point. All past experience shows how such conditions tell on the public health of Glasgow. In the week ending Dec. 6th, 1894, the rate was 37·3; in the fortnight ending March 31st, 1883, it was 36; in December, 1882, it was 37 5; and in the week ending Jan. 29th, 1881, after conditions exactly like those recently experienced, it was 46. But to appreciate the possibilities of a continuous frost and fog in Glasgow the winter of 1874–75 must be quoted: in the week ending Jan. 9th, 1875, being the seventh week of frost and fog, the mortality rose to 67. In such circumstances ordinary sanitary measures fail to touch the cause of public suffering; these can be dealt with only by such benefactions as are now being so freely and judiciously distributed by the Lord Provost's relief organisation, the funds at the disposal of which now reach about £10,000. The only possible palliative is warmth—the warmth of food, fire, and clothing. Small-pox continues to spread, though slowly, there being now 43 cases in hospital.

Aberdeen Royal Lunatic Asylum.

The mason work of the new hospital has been finished and the whole of the different blocks and corridors roofed and made watertight, while the plaster work is completed except a small portion. The buildings will be occupied by October next. The new hospital will accommodate 150 patients. The extreme length east and west is 526 ft. The administrative block, to serve the whole institution, occupies the central position; the other blocks extend symmetrically on the two sides—the female department on the east, and the male on the west—all connected by an amply lighted and ventilated corridor running from end to end of the

buildings, and opening into the central common dining hall. On each side of the administrative block is a department for the reception of cases of a recent hopeful variety—in other words, a mental observation block—each connected with the central by: (1) the main corridor in the rear; and (2) an exercise corridor in front—the space between the two being occupied by a glass-roofed conservatory for the recreation of the inmates in cold or wet weather. Beyond the observation block, and connected with it by the general corridor, is a hospital block at each end for the reception of sick from all parts of the institution. These are each furnished with a small kitchen for special needs. Beyond each hospital block, and disconnected from it, is a small block for the isolation of infectious disease. In the rear of the administrative block stands the block for heating and ventilation on the mechanical propulsion system by the Sturtevant Engineering Company. The lighting is to be solely electrical. The administrative block is three storeys in height, the mental observation blocks two storeys, and the hospital blocks one storey. The bath-room and lavatory accommodation is mostly contained in annexes to the main buildings. All the external walls are of granite. The engineering department will be contracted for forthwith.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Death of Mr. Charles H. Robinson, F.R.C.S.Irel.

MR. CHARLES H. ROBINSON of Kingstown died on Friday, March 1st, after but two days' illness. He had been an examiner in anatomy, physiology, materia medica, and botany at the Royal College of Surgeons in Ireland; and a lecturer on several of these subjects in the Ledwich School of Medicine, Dublin. He had been for many years one of our special correspondents in Ireland, and was deeply and universally respected.

The Battle of the Clubs at Cork.

How will the dispute between the Cork medical men and the clubs end? This is a question asked by many people. My answer is that the medical men need only preserve their present passive yet determined attitude and the gradual disintegration of the clubs must result. Many indications point in that direction. I know one practitioner who last week attended three or four club patients, and each patient represented a different club. I could quote several instances of the same kind, and, what is more remarkable still, some of the most pugnacious members of the clubs have acted similarly. The wives of members in many instances decline to be treated by any but their previous medical advisers, and those members will soon commence to ask themselves whether it is wise for them to continue to contribute to clubs from which they derive no immediate benefit. So the very existence of many of the clubs is threatened, and the members have only their own perverseness to blame. The following subscriptions are announced by Mr. D. D. Donovan, the hon. treasurer of the Cork Society Medical Officers' Indemnity Fund:—Surgeon-Lieutenant-Colonel McCreery (Isle of Wight), £2 2*s.*; Dr. Oakshott (Cork), £3 3*s.*; Surgeon Foott, R.N. (H.M.S. *Lapwing*), £1; Dr. John B. Isaac (Broadmoor Asylum), £2 2*s.*; and Dr. H. Macnaughton Jones (London), £3 3*s.*

Death of the Professor of Modern Languages in the Queen's College, Cork.

The Queen's College has sustained a great loss by the death of Professor Owen O'Ryan, who for a number of years with much distinction occupied the chair of Modern Languages. He was originally a student of the college, and afterwards resided for a considerable time in Germany, France, and Italy. He gained an intimate knowledge of the languages of those countries, and when the death of M. De Vericour created a vacancy the Government of the day unhesitatingly appointed Professor O'Ryan to the chair of Modern Languages. He afterwards became an Examining Fellow of the Royal University of Ireland, and was always most courteous and conscientious in the discharge of his duties. About two years ago incipient hemiplegia set in and some time later a severe attack of influenza caused the paralytic symptoms to develop more rapidly. He had twelve months' leave of absence from the college and the long-expected end came last Friday week. The many medical students who passed through his class at the college or were examined by him at the University will hear of his death with unfeigned feelings of regret.

Some months ago a bazaar on a gigantic scale was organised for the purpose of procuring funds for the building of a new ophthalmic hospital. The committee of the bazaar met last week and announced that after defraying all expenses they had in hand the handsome sum of £4000.

March 5th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The late M. Alphonse Guérin.

THERE has just disappeared, in the person of Alphonse Guérin, one of the most prominent representatives of the old French school of surgery. Born on Aug. 9th, 1817, at Ploermel, in Brittany, he, at the early age of seventeen, embraced a medical career, much against his own wish, which inclined towards the profession of arms. It came about in this way. One of his cousins, a sister of charity at the Hospital of Bourbon-Vendée, wrote to his mother, a poor widow, offering to bring up Alphonse as a medical man. Yielding to the solicitations of his mother, he had no sooner reached the hospital than he had to assist at the gruesome operation of phlebotomy, performed by his relative, the sister of charity. The embryo surgeon promptly fainted away, but next morning he had to repeat the operation on the person of his teacher. He missed the vein, whereon his petticoated mentor and patient calmly remarked, "C'est ce qu'on appelle une saignée blanche; recommence de ce côté," offering the other arm. The blood flowed, and his cousin said, "Tu sais faire une saignée; tu peux être médecin." Other venesections and minor operations successfully performed imparted confidence to the beginner, and he then entered on that career of tenacious labour for which he was ever after renowned. Removed to Paris, we find him an "interne des hôpitaux" in 1840, "aide d'anatomie" in 1843, M.D. in 1847, "prosecteur des hôpitaux" the succeeding year, and "chirurgien des hôpitaux" in 1850. Like the late Dr. Dujardin-Beaumetz, his attempts to join the professorial staff of the Faculty ended in failure, the disappointment being due entirely to his uncourtier-like honesty of purpose and not to incapacity. His first wards were at Louraine Hospital in 1857. In 1862 he was transferred to Cochin, and in 1863 to St. Louis, where he remained for nine years, when he became attached to the Hôtel Dieu. Here his hospital career expired in 1879, he having attained the age limit for retirement. Elected a Member of the Academy of Medicine in 1868, he became President of that society in 1884, after having already filled the same dignified position at the Société de Chirurgie. At his death he was a Commander of the Legion of Honour. There was one other honour he coveted and never obtained, and that was a *fauteuil* at the Institut. And yet, who among his colleagues merited it more? His contributions to surgical progress were numerous and important, comprising as they do two works on diseases of women and one on operative surgery, which was in its day held in great esteem by a previous generation of students. But his chief title to fame is based on his advocacy of the *pansement ouaté* (cotton-wool dressings). As Professor Terrier remarked in his introductory lecture in 1893, the researches which led to the devising of this form of wound dressing marked an epoch in surgery intermediate between the old ideas and Listerism. As Professor Terrier says, it is the *pansement ouaté*, improved by modern discoveries, which will be the best practical method of treating wounds in the next big war. In 1870, while soldiers operated on by others died like flies, it was remarked that Guérin's patients recovered, thanks to the application of his method, in the invention of which he was inspired by the following considerations. The great desideratum in wound dressing was the filtering of the air from its contained germs, the maintenance of a uniform temperature and of a certain degree of elastic compression, and perfect rest of the wound secured by infrequent dressings. Alphonse Guérin very ingeniously applied wool for this purpose, and that his ideas are still in favour is shown by the large and universal use made of his method in combination with Listerism in the treatment of wounds in the Paris hospitals. We may therefore willingly accord to Alphonse Guérin the credit of having been a pioneer in surgical methods, and as such he is and will continue to be

honoured in his own country, if not out of it. As a man he was distinguished by a rigid sense of duty. Although on the honorary staff of hospital surgeons for the last fifteen years, he sat only a fortnight before his death as President of the Board of Examiners at the examinations for the place of *interne*. He was also to have presided over the deliberations of the next French Surgical Congress. It will be remembered that he was vice-president of the last gathering held in October, 1894, at Lyons. Dr. Laborde has said of him: "Franche et loyale nature, d'une grande finesse d'esprit, maniant comme pas un le trait sarcastique qui parfois emportait le lambeau; mais au fond plein de cœur, de bonhomie, et de bonté, Guérin eût dû certainement avoir sa place à l'Institut si cette attribution n'eût dépendu et ne dépendait que de la justice distributive," which says much to the credit of Guérin and little to that of the body from which he was excluded. Fortunately, his claim to gratitude on the part of humanity will not be diminished by his failure to obtain an ephemeral honour of that kind. A *Breton bretonnant* (a Breton of Bretons), his purse was ever open to his needy compatriots, and he died full of love for his native department, where now lie his remains.

Drugs contraindicated during Pregnancy.

This very debatable question is settled in the following sense by M. Huguenin.[1] At the head of dangerous substances for the pregnant woman he places sodium salicylate, ergot of rye, salicylic acid, and salol. Then come purgatives. He cannot regard antipyrin and cocaine as inoffensive. But is it not possible to pronounce too absolutely on this point? Surely there are pregnant women and pregnant women. *Apropos* of the employment of drugs at this period of the woman's life, I have often thought that an authoritative statement regarding the drugs dangerous to the child when given to the nursing mother would be found useful. No practitioner would, I imagine, be content to combat syphilis in the child by prescribing mercury to the mother.

March 5th.

THE INDIAN MEDICAL CONGRESS.

PROCEEDINGS IN SECTION.

MEDICO-LEGAL MEDICINE.

DEC. 26TH, 1894.

THE following are abstracts of papers read in the Section of Medico-Legal Medicine:—

On Some Cases of Poisoning by Scopolia Lurida.

Surgeon-Captain ALLAN MACNAB L.R.C.P. Lond., read a paper on Some Cases of Poisoning by Scopolia Lurida, in which he said:—

"Believing that few, if any, cases of poisoning due to this plant have yet been recorded, and in view of the possibility of an occurrence of the same kind as that which I am about to relate under similar circumstances, I am led to think it worth while to give the following account of an incident that occurred during the Black Mountain campaign of 1891 and to furnish a description from notes made at the time of a series of serious symptoms that rapidly supervened after the leaves and succulent stalks of scopolia lurida had been eaten in mistake for a very similar and quite harmless plant known to Ghoorkas as 'tambáku sag' or 'taringa.' It seems to be an accident that might well happen again, for, from the account of the men who, deceived by its similarity to the herb which they are accustomed to gather and eat with their food in their native hills of Nepal, partook of the plant in question and were poisoned, there is a very great resemblance between the two. On the night of May 20th, 1891, I was summoned by the hospital assistant of my regiment, then in camp at Seri on the Black Mountain, to the lines of No. 5 Company Ghoorkas, being told that seven or eight men were lying in various degrees of delirium and unconsciousness, which had come on shortly after they had eaten their evening meal. On reaching the tents I found a havildar and seven men, all Ghoorkas, suffering from a series of symptoms which were very distinctive of belladonna poisoning—viz., marked dilatation of the pupils, a feeling of constriction in and dryness of the throat, a peculiar variety of fussy delirium, with hallucinations, and the loss of power of coördination in the lower extremities. Ascertaining that all had eaten the leaves and stalks of a plant they called tambáku sag, which had been given them by some men of their own company on picquet some 1500 feet higher up the hill, whom they had that afternoon been to visit, I examined at once a specimen of the plant lying near, and from a certain resemblance of the leaf to that of belladonna and that of the symptoms to those of belladonna poisoning I first thought it might be a variety of that plant, and after giving each man sixty grains of lime sulphate, which produced emesis in every case, I administered morphine hypodermically to the two worst cases, and had all taken to the nearest field hospital. Arrived there, the next three hours were employed in giving ammonii carbonas to induce emesis and then in keeping the men constantly moving. This treatment answered very well, and by 2.30 A.M. all were in a condition which permitted of their being put into tents, a careful watch being maintained upon them. The havildar, who throughout seemed least affected, returned to the regiment next day and the remaining seven men the day following. I examined all in the day on which they returned to the regiment and found they were still suffering from various degrees of dilatation of the pupils, inability to accommodate, and giddiness. All these symptoms, however, entirely disappeared in a day or two, and the men were sent back to duty. Their symptoms from the beginning and more in detail were as follows. Some fifteen minutes after first eating the herb they said that they began to experience a feeling of constriction in and dryness of the throat, soon amounting to an inability to swallow, rapidly succeeded by a sense of muscular weakness and tremors so marked that they found themselves without sufficient strength to continue to break and eat their chapatties; giddiness and inability to stand upright were next experienced, and finally the condition of delirium and semi-consciousness supervened in which I found them. To this it may be added by way of fuller description that most of them were unable to answer when spoken to, and those who could had forgotten their own names. Some lay on the ground in a dazed condition others sat up constantly making fidgety movements with their fingers, picking up small particles of sand or pebbles from the ground, or appearing to be searching for something they had lost, and occasionally looking up with a half vacant, half wild expression. In none was there anything approaching a state of collapse; the pulse was good if a trifle rapid; in all respiration was never stertorous; no pain was complained of save the dryness of the throat and the painful sense of constriction. The mouth was dry and salivary secretion arrested. They exhibited all varieties of gait, from trifling unsteadiness to complete loss of control over their lower limbs. It being dark and all quiet in camp and the men being together, their condition for some time escaped notice, and it was not until nearly three hours had elapsed after eating the herb that I was called to them. It seemed fortunate, therefore, that their condition had not become more serious. Four had vomited before the emetic was given them; only one had passed urine before losing consciousness, and then in small quantity and with some amount of strangury. I very much regret that I am unable to show a specimen of the plant, which, however, was submitted for identification at the time, and presumed, without much doubt, by an experienced botanist to be scopolia lurida. The plant grew very locally at an elevation of from 7000 to 8000 feet, and occurred rarely. The plant for which it was mistaken is, the men say, very similar in appearance, and is known by them in Nepal as 'taringa' or 'tambáku sag.' There is said to be this important difference—viz., that the stalk of tambáku sag is hollow, while that of scopolia lurida is certainly solid and succulent; but, never having seen the plant, I am unable to speak with certainty on the point, and had I thought of it before I would have tried to procure a specimen for comparison, and much regret that the interest, if any, that the note has should be so greatly lessened by the want of specimens both of tambáku sag and scopolia lurida."

A Remarkable Case of Quinine Poisoning.

Surgeon-Captain A. ERNEST ROBERTS, M.B., Civil Surgeon, Aligarh, North-West Provinces, read a paper upon the following case of Quinine Poisoning, saying:—

"As far as I can ascertain, the subject of poisoning by quinine has not received much attention from medical authors—at any rate, I have not been fortunate in my researches into medical literature in obtaining light and leading upon this subject. I am therefore impelled to put the following case on record as one of remarkable interest in many ways. An Eurasian woman, aged thirty-five, married,

[1] Archives de Tocologie et de Gynécologie, February, 1895.

no children, in comfortable circumstances, had always enjoyed good general health, but had been troubled for nearly two years with menorrhagia associated with slight uterine retroflexion. This local trouble had been temporarily overcome by treatment, and she had normal periods for three months, when at noon on a certain day in November, 1893, I was suddenly summoned to her bedside, as she was declared to be dying. On my arrival I heard that she had swallowed a very large dose of sulphate of quinine an hour or so before, and from the evidence available, which I carefully and critically weighed, I believe the quantity to have amounted to about six drachms. There is no doubt in my mind that she managed to swallow fully five drachms, and there were traces of a little in the vessel from which she drank it, and on her lips, at the time I first saw her. She was lying upon her bed totally unconscious—an inert paralysed mass. The whole surface of her body was deadly cold and blanched, or, rather, livid; her temperature (axilla) was 95° F., breathing almost imperceptible, shallow, and slow, and the pulse was 45, thin and small. Her eyes were closed, and the pupils were considerably dilated, there being no response to light; no tendon reflex was obtained and there was no response to external stimuli, and save that she at long intervals uttered a low groan she appeared to her friends to be dead. My own anticipations were not cheerful. There was little, if any, change in her condition for several hours, during which she vomited 'coffee-ground substance' several times. Indeed, definite and obvious signs of rallying were deferred until the early hours of the next day, and it was then ascertained that, in addition to slight deafness, she was 'stone blind,' even to total non-appreciation of strong sunlight. The deafness gave no trouble; perfect hearing was restored within a week, with the gradual return of general functional activity, but it was long ere all traces of the tremendous shock to the general system had disappeared, and doubtless the demoralisation induced by the blindness and the terrible circumstances served to accentuate the profound debility. I have said that at first the pupils were widely and equally dilated, and did not respond to the stimulus of light; the blindness was the dense, uncompromising darkness of atrophy. It was not until forty-eight hours had elapsed that I found an opportunity of using the ophthalmoscope, and the picture I obtained was definite and well marked. There was a blur or haze over the whole perceptible retinal field, there was a distinct deepening of colour (congestion), especially concentrated in the macula; the discs were not definitely altered in colour, but, if anything, perhaps also of a slightly deeper tint than normal (I speak under reserve, as I am not very familiar with the exact shade of the Eurasian disc), but hazy and with ill-defined margins. I can think of nothing more suggestive as an indication of the impressions I received during the first examinations than a rather highly coloured and crude water-colour sketch which had been very slightly smudged, perhaps I may call it 'smoky,' so that the contours of the vessels were blurred and not well defined. However, this stage was of short duration. The tint of congestion and the blur alike disappeared, and in a week from the onset I began to fear that optic atrophy would close the scene. The retinal vessels, both veins and arteries, became well defined and contracted, and the optic discs became distinctly pale; the pupils remained widely and equally dilated and insensible to light. I made frequent and regular examinations, but my powers of observation did not avail to detect any very decided change in the ophthalmoscopic appearances during a period of quite three months. The general retinal ischæmia and disc pallor did indeed quickly become decided, and remained thus with no perceptible change for about six weeks, when a very slight improvement set in. During the fourth and fifth month a certain distinct but small improvement could be noted at considerable intervals, but when I left my charge for six months' leave the retinal anæmia was still the notable objective sign, the disc having fairly regained its normal tint. So far for the objective signs. As regards the subjective I may briefly add the following particulars. The absolute 'stone blindness' lasted, I believe, for fully two weeks; the first perception after that was the flash of light from the ophthalmoscopic mirror, but there was no perception of external objects until the third or fourth week, when certain things—a small bright metal timepiece, the looming figure of an individual—were seen at a distance of four to eight yards. This distant vision was a marked feature of the case for two or three months, and though it gradually gained in distinctness of outline and detail was a blurred impression on a dim and hazy background. A noticeable point during the fourth week also was her perception at a distance of dark linear objects—e.g., the parallel beams of the roof of the bungalow and the cross bars of the windows in the doorways. Here also the definite objective points were lost in an indefinable haze. It was somewhat surprising that she could occasionally read the dial of the clock before mentioned at four or five yards distance, but could distinguish no neighbouring object. Colour blindness was marked from the first, but about the sixth week she noted the dark blue of my necktie; red and yellow were, and are still, best distinguished. From the sixth to the eighth week onward, with occasional relapses synchronous with a return of the menorrhagia and other disturbances of the general health, she gained ground in all points, very slowly but surely, and in April last she could write a letter and read large type, the effort being exhausting to her visual faculty, and consequently not persevered in. At this stage I lost sight of the case owing to my departure on leave, but I have recently heard from my patient that, although much better in most respects, there is much left to be desired in her visual powers; she gets about, reads and writes, and uses her mirror satisfactorily for toilet purposes, but her colour vision is defective, red and yellow being still most easily distinguished, and these at a distance, nearness of approach causing objects to appear black, the general hazy blur of the background of the visual field being also a trouble to her."

[Surgeon-Captain Roberts does not say what treatment (if any other than expectant) he employed.—ED. L.]

DEC. 27TH.

Strychnine in Cases of Snake-bite.

Surgeon-Captain J. J. PRATT, I.M.S., civil surgeon, Gonda, read a paper upon Strychnine in cases of Snake-bite. In this paper he said:—

"During the past two years I have had the opportunity of applying the method of treatment recommended by Dr. Mueller in cases of snake-bite on two occasions. The first case occurred at Fyzabad and was treated by Surgeon-Major Cadge, I.M.S., and myself. The particulars are as follows: A Hindu male aged twelve years was admitted into the Fyzabad Sadr Dispensary about 7 A.M. on the morning of July 26th, 1892. Patient was accompanied by his father, who stated that half an hour previously, when the boy was seated at his morning meal, a snake suddenly appeared and bit him on the great toe of the left foot. He (the father) at once enveloped his hand in a cloth, seized the snake close to its head, tore it from the boy's foot, and hurled it some distance, where it was promptly killed by a police constable. This statement was confirmed by other spectators. The snake, which was brought to the dispensary with the boy, was a cobra 3 ft. 3 in. in length and of dark-grey colour. The boy on admission complained of pain, tingling, and numbness in the left foot. The surface of his body was cold and he appeared to be a little drowsy, but there were no marked general symptoms. On examination of the foot a distinct puncture was found on the upper and inner surface of the great toe about an eighth of an inch from the edge of the nail. There was slight bleeding from the puncture and the skin immediately around it was ecchymosed. The toe was distinctly swollen. No second puncture could be discovered, this being probably due to the horny nature of the thickened epithelium of the part. A crucial incision was at once made at the site of the puncture, the wound washed with a strong solution of permanganate of potassium, and a bandage tightly applied round the leg above the ankle. Five minims of the ordinary pharmacopœial solution of strychnia were then injected hypodermically, and the injection repeated every five minutes. After the seventh injection the patient was seized with tetanic spasms and vomited. Treatment was then suspended for the space of an hour and a half, when drowsiness became very marked. The injections were accordingly resumed at intervals of ten minutes, and after the sixth dose (being the thirteenth in all), when a total of sixty-five minims had been injected, a severe spasmodic fit came on. This was at 11.10 A.M. Between 11.15 and 11.45 A.M. a succession of severe tetanic spasms occurred, the muscles of the abdomen, back, and thighs being chiefly affected. The pulse became feeble and fluttering—140 to the minute—and respiration almost ceased. For a short time it almost appeared as if the patient were about to succumb to the effects of the 'remedy.' Small quantities

of brandy and extract of chicken were administered and swallowed with difficulty. The temperature was found to be slightly above the normal. Between noon and 1 P.M. patient's condition improved, the spasms being few and slight. In the course of the following hour they ceased entirely. The temperature at 3 P.M. was 103° F. The patient was perfectly conscious and complained only of the tightness of the ligature on his leg; the foot was much swollen. Nourishment was taken in small quantities. At 6.30 P.M. the ligature was removed without causing any untoward symptoms. At 6 A.M. on the 27th the temperature was 101° and fell to normal in the course of the day; the pulse was good; there was no pain. The swelling of the foot rapidly subsided; no further symptoms appeared and the boy left the dispensary on the morning of July 29th in perfect health, with the exception of a trivial wound on his toe. The second case occurred in my own compound at Gonda, and was treated by my assistant surgeon and myself. A Hindu female aged twenty-five, the wife of one of my servants, was bitten by a snake about 2 A.M. on June 15th, 1894 whilst lying asleep on the floor of her house. The snake, described by the woman's husband as 'kala,' escaped. Assistance was not applied for until 3.30 A.M. (an hour and a half after the infliction of the bite), by which time the patient had developed marked general symptoms, notably drowsiness and loss of power in the legs, being unable to walk or stand by herself. Great pain was complained of at the seat of the bite, which was found to be the inner side of the left arm close to the posterior axillary fold. Two distinct punctures were visible about three-quarters of an inch apart. The surface of the skin was cold and clammy, the pulse feeble, and respiration slow and sobbing. At 3.45 A.M. one-fifteenth of a grain of strychnia was injected hypodermically, and the patient sent on to the Sadr Dispensary for treatment to be continued. At 4 A.M. the patient arrived at the dispensary insensible, with profuse salivation, hands and feet cold, conjunctivæ congested, pupils normal, and pulse feeble. Fifteen minims of the B.P. solution of strychnia were at once injected. At 4.15 A.M. there was no improvement; the pulse was feebler and slower, breathing stertorous, and the face was becoming cyanosed. The injection was repeated. At 4 30 A.M. the face and hands were markedly cyanotic, the pulse being feeble and at times intermittent, the surface of the body cold, and the respiration 6 to the minute. The injection was repeated. At 4 45 A.M. the patient died. Three days later a large cobra was killed in the hut in which the woman had been bitten. The first of these cases is complete as far as it goes. The snake was produced with the patient; strychnia was administered in what under ordinary circumstances would be regarded as dangerous, perhaps deadly doses; the symptoms produced by the drug were for a short time alarming but soon passed off, and the boy made a rapid recovery. The only element of doubt attaching to the case is whether the bite inflicted by the snake was really an effective one. Only one puncture was discovered, and the quantity of venom injected may have been small, or one may go even further and suggest the possibility of the cobra having bitten the boy without injecting any poison at all. It is possible that many authentic recoveries, supposed to be due to the administration of antidotes, are really due to the bites not having been vicious. The second case was unsatisfactory from the commencement. The period which had elapsed before medical aid was sought and the position of the bite in close proximity to the trunk were unfavourable to the successful adoption of any line of treatment. No ligature could be applied above the bite, and the patient's condition showed it to be certain that local treatment would be of no avail. Within the short period of an hour more than half a grain of strychnia was administered without the slightest sign of even temporary improvement. Perhaps the doses should have been larger. My mind remains open on the question of the efficacy or inefficacy of Mueller's method of treatment. I always look forward with interest to accounts of cases in which it has been adopted by other medical men, and shall not hesitate to give it a further trial myself should the opportunity offer. In view, however, of the many doubtful cases which have been published, I wish to close my paper with a humble expression of opinion to the effect that the great majority of cases of so-called 'cure' of snake-bite, in which the offending reptile has neither been killed nor captured and subsequently identified by a competent authority, are of absolutely no scientific value."

SURGERY AND OPHTHALMOLOGY.

DEC. 27TH, 1894.

The following are abstracts of papers read in the Section of Surgery and Ophthalmology:—

Conjunctivitis in Gaols.

A. RAGASINGHAM, M.B., C.M., Assistant Medical Officer, Convict Hospital, Colombo, read a paper upon Conjunctivitis in Gaols. In this paper he said:—

"The following notes were compiled from the cases of conjunctivitis treated at the Convict Hospital, Colombo, from Jan. 1st, 1894, to Nov. 7th of the same year. This gaol is the largest in the island, and the cases treated here may be taken as a fair type of the disease as met with in the Ceylon prisons. Some of the cases treated here were extremely mild, while others were of the most severe type, and a very large number may be assigned to the class of considerable severity. Almost all the cases treated in this gaol were in males, and the females, though few in number comparatively, were almost exempt from this disease; and hence it would be reasonable to conclude that male prisoners, from hard work, exposure to the sun, and the intrinsic nature of their occupations, are more liable to this disease than females. It would hardly be necessary to premise here that among the gaol population all diseases, especially conjunctivitis, would be brought under treatment from the very onset; and hence the relative value of the following figures, and the conclusions drawn from them must be placed on a somewhat different footing from the statistics of the civil hospitals and private practice. By careful calculation the average stay in hospital of an individual is found to be 5·37 days, the maximum being 76 days and the minimum 1 day. But when a patient had stayed in hospital more than 16 days, some other complication or intercurrent disease must be searched for. It is almost self-evident that certain trades and occupations, such as masonry, lime-making, stone-cutting, stone-polishing, sledging, brick-making, would predispose labourers to conjunctivitis, and these presumptions are fully borne out by figures. The annexed table would make this plain:—

Occupation in Gaol.	No. of cases.
Mason's party	374
Husk-beating	128
Sand party	32
Levelling party	18
Latrine party	15
Fencing party	14
Cleaners and sweepers' party	10
Cabbork-cutting party	7
Stone-cutting and breaking party	6
Hospital attendants	3
Lamp lighter	1
Other parties	—

"I should not omit to mention here that trachoma forms an important factor both in causing this disease and in bringing on unfavourable results, and it is in such cases that general ulceration and sloughing of the cornea are liable to supervene owing to the nutrient material failing to reach the corneal cells. If trachoma and œdema of the lids should exist simultaneously the unfavourable termination would be brought on much earlier. The various seasons of the year exert a powerful influence both in predisposing to and exciting this disease. Thus April shows the largest number and October the smallest according to the statistics of the hospital. The following table illustrates this point.

Number of Cases treated in the Various Months.

January	40	August	64
February	101	September	53
March	110	October	51
April	121	November	16
May	57		
June	70	Total	745
July	62		

In a gaol where the number of inmates is limited, it is not an uncommon thing for one person to be readmitted again and again, at short intervals, for the same disease, and conjunctivitis is no exception to this rule; and the annexed table and chart show how many times certain number of men were admitted for this disease. I should not omit to mention in this connexion that in gaols a certain number of cases of conjunctivitis are self-induced, and are to be attributed to malpractices, such as the application of the juice of the croton seeds, lime, seeds of the castor-oil plant, emplastrum cantharidis, when applied externally for the legitimate purpose of causing a blister. Except in the early stages such cases cannot be diagnosed from the genuine conjunctivitis. I have also noticed that in tropical climates, such as those of Ceylon and India, hypertrophy of the follicles of the eyelids are much more common than in temperate climates like

Scotland and England; and I cannot but attribute this disorder mainly to any other influence but heat and direct exposure to the burning rays of a tropical sun. When applied to the head ice relieves the feeling of oppression and weight in the head, and tends to reduce the œdema of the lids. It relieves insomnia in certain cases of acute conjunctivitis. As a rule, preparations of opium are freely used internally, but chloral and bromide are used if insomnia is troublesome. I have noticed that a favourable position would tend to reduce the excessive œdema of the lids, especially in old, weak, and debilitated subjects. Thus, if a patient should sleep on the unaffected side the swelling would tend to decrease, and *vice versâ*. It is routine practice to administer a drastic purgative like magnesium sulphate at the commencement of all cases of conjunctivitis provided that there are no contra-indications, and I have some faith in this preliminary procedure. Of the 750 cases treated all invariably recovered except one, an old emaciated individual about sixty-five years of age suffering from trachoma. In this case swelling of the lids was excessive, and in two or three days sloughing of the conjunctiva set in, and the patient lost the sight in this eye almost completely. Here strong solutions of nitrate of silver proved of no avail, and every other mode of treatment failed. The age of the patient and the condition of the lids would explain the cause of failure."

Some Difficult Cases of Chloroform Administration.

Mr. ARTHUR NEVE, F.R.C.S. Edin., in a paper upon Some Difficult Cases of Chloroform Administration, said:

"The fact that for all practical purposes ether is not available as an anæsthetic in India should enable the profession here to regard the chloroform controversy from an unbiased standpoint. Here it is not a matter of choice; but it is not reasonable to declare that because chloroform is the only available general anæsthetic in India, therefore it is the best in a cool climate. Nor, if it could be proved that it is absolutely safe in this country, should we settle the controversy in that way. India could contribute two important facts, which perhaps may be elucidated at this great gathering. First, the relation of race to anæsthetics, and this might include the question of racial habits, such as vegetarian diet and abstinence from alcohol. Secondly, the effect of temperature and altitude upon chloroform anæsthesia. Can any clinical difference be established between the administration to natives of India of chloroform in hot weather with a mean temperature of over 85° F., or in cold weather with a mean temperature of 50° or lower at such stations as these temperatures exist, and does an altitude of 6000 or 8000 feet affect the question clinically? These practical contributions to debatable points might reasonably be speedily expected from Indian surgeons. A New Zealand surgeon claims that careful study of cases shows that the aborigines there are less liable to suffer from shock, and that Europeans, if insufficiently anæsthetised, are apt to die from inhibition of the action of the heart. Does Indian experience homologate this view? Could an Indian committee be formed to investigate all fatal cases occurring in this country? I published a case in THE LANCET [1] in which partial anæsthesia *plus* shock caused very serious symptoms. It referred to a strong Kashmiri who required castration for sarcoma of a testicle. Owing to vomiting the anæsthetic was insufficiently administered; and at the moment of applying a clamp to the cord the patient became rigid, as in a tetanic spasm, and the heart's action stopped; the wound ceased to bleed. With difficulty—after inversion, injection of ammonia, and also per rectum of hot water, together with steady artificial respiration—the pulse began to flicker, the chest heaved, and the patient was restored. As he was sensitive to the knife I then rapidly administered two drachms of chloroform, which the patient inhaled quietly, and the operation was finished deliberately and safely. I am convinced of the importance of this and similar cases. One which I narrated at the meeting of the British Medical Association at Bournemouth has the same lesson. A patient suffered both from severe heart disease and from stone in the bladder. Chloroform was timidly given, and as the staff was inserted the patient gave a gasp and fainted. He was with difficulty restored to consciousness. A fortnight later I arrived in the town and was consulted. I offered to administer chloroform myself. Two drachms were given and the operation was begun. As the patient had taken chloroform quietly all seemed well, and I was asked to assist in the operation, leaving the house surgeon to continue the administration. Scarcely two minutes had passed before the breathing appeared to stop. What was the cause? An overdose? No, for no more chloroform had been added. It was the shock acting reflexly on a heart neither protected by consciousness nor by full anæsthesia. I append two cases of faulty administration that have occurred this year out of over 500 chloroformisations under my care. In both cases I was summoned from an adjoining room where I was operating. In one a native assistant of considerable experience was operating while another, who has chloroformed thousands of patients, gave the anæsthetic. When I entered the patient had been partially inverted, the operator was performing artificial respiration, while the other drew on the tongue with the head back; but observing that the lips were purple, which was evidence of continued action of the heart, I at once put my finger down behind the tongue and raised the epiglottis. Immediately one heard the air rush into the chest, and in less than a minute a sighing inspiration showed that natural respiration was recommencing. In this case I think an overdose had been given and the tongue had fallen back, and the traction upon it did not suffice to open a flaccid epiglottis. The other case was one in which chloroform had been badly taken, the patient struggling a little and afterwards incessantly spitting. Anæsthesia was pushed to stop this annoying reflex symptom and the moment it ceased the respiration also stopped and the patient turned pallid. When called in I lifted him on to the ground with his feet and body up and began artificial respiration; the air entered the chest, but for a few seconds the absolute pallor remained. Then there was a slow, natural inspiration; recovery was slow for a minute, and then, with a heave of the body, vomiting began, and the stomach emptied itself of two pounds of semi-digested rice. Here, as in other cases, the syncope was connected with a full stomach and was premonitory of the vomiting. There were two other cases very noteworthy. One was a woman with a gumma over the thyroid cartilage, with considerable dyspnœa, and a constant spasmodic cough. I administered chloroform myself, and began with a dose of ten minims on a towel. There was a moment of struggle, then she lay senseless, and the operation was begun. Her breathing was almost imperceptible and the pulse thready. No more chloroform was given, and the operation (which lasted about twenty minutes) was completed without a sign of consciousness, but soon afterwards she came slowly round. The other case was that of a lad with very great dyspnœa from the pressure of a goitre which with each inspiration was sucked down behind the sternum. As in the earlier case only a few drops of chloroform were given, Mr. W. F. Adams kindly taking charge of its administration. I had well begun the operation when breathing stopped, and also the bleeding except some venous oozing. No more chloroform was given. The legs were raised and artificial respiration began &c. I went on with the operation and removed the portions of the goitre resting over the trachea. Still he remained unconscious, with great dyspnœa, owing to the flattened and infantile condition of the trachea, so I proceeded to open the trachea below the cricoid cartilage. An ordinary tracheotomy tube gave no relief, so I inserted a gum elastic catheter for three inches down the trachea. Shortly after this the patient began to show symptoms of returning consciousness. In both these cases the blood was very venous, and the poisonous effect of the chloroform upon the medulla oblongata was at once manifested even in minute doses. There have been upwards of *six thousand* administrations of chloroform since 1875, without a single direct or indirect death, in the Kashmir Mission Hospital, though not a year passes without dangerous symptoms occurring in a few cases. We have seen (1) primary syncope from fear, and also from (2) laryngeal spasm; (3) secondary syncope from shock due to insufficient chloroform, and also from a proper dose acting on non-oxygenated nerve centres; (4) tertiary (sometimes secondary) syncope connected with vomiting; (5) apnœa from (*a*) mechanical causes, (*b*) spasm of the larynx, and (*c*) from the toxic action of an overdose (relative or absolute) on the nervous centres. In any of these ways life may be lost. The surgeon must hold clear views on the method of administration, so as to steer as clear as may be practicable in any given case of these various dangers; and he must be prompt to recognise the danger signals of a dilated pupil, or gasping or stertorous breathing, or change of colour in the lips. He must also be thorough as well as prompt in his method of restoration. If he have fewer accidents than his fellows let him not attribute any special credit to himself, still less apportion blame to his neighbours, for the time may be near when he will himself meet with a fatal case due to idiosyncrasy of the patient."

[1] THE LANCET, Dec. 17th, 1892.

Obituary.

SIR WILLIAM SCOVELL SAVORY, BART., F.R.S.,

LATE PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND; CONSULTING SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

"THE angel of death has passed over this land; you can almost hear the beating of his wings." These words of one of England's greatest orators must be in many men's minds to-day, and to our profession they must appeal with special force, since in the short space of fifteen days two of the foremost in the realm of surgery have ended their labours. Scarcely had John Whitaker Hulke been laid to his rest than he is followed by his intimate friend and fellow worker, William Scovell Savory.

William Scovell Savory was born in 1826 on Nov. 30th (St. Andrew's Day). He was educated at a private school at Ramsgate, under Mr. Darnall, whose name is inseparably connected with copy-books. Whilst at school he already showed signs of the declamatory and oratorical powers which were so noticeable in his after career, it being on record that on one occasion he took the part of Cato in Addison's tragedy with great success. Several years afterwards he could repeat many of the lines, and was specially fond of quoting those two lines so appropriate, as future events showed, to himself:

"'Tis not in mortals to command success,
But we'll do more, Sempronius, we'll deserve it!"

He entered as a student at St. Bartholomew's Hospital immediately after leaving school, and was a most regular attendant at lectures, so much so that once when later in his life he was speaking to some students about irregular attendance, he said that he never remembered missing one of the lectures of Sir James Paget, which began with the utmost punctuality every morning at nine; nor was he ever late, though living at that time at Oakley-crescent, in the City-road. His work in the out-patient room and in the other practical departments of his hospital education was not less systematic. He dressed for Sir William Lawrence and clerked for Sir George Burrows, both of whom entertained a very high opinion of his abilities. At a very early period Mr. Skey formed a strong attachment to him, and took him to most of his operations; while in his "Treatise on Surgery" the same surgeon paid a tribute to his pupil's knowledge and predicted his future success. Mr. Savory read and materially modified the proof-sheets of this work, and wrote the whole of the chapter devoted to the diseases of the eye, which is sufficient testimony to the position of esteem which he occupied in his senior's mind. From student days he was a born orator and debater. At the Abernethian Society of St. Bartholomew's Hospital he always argued well. If in the chair he could always sum up better than any other member, while in discussion he could take either side with equal ease, often opposing for the mere love of argument. His scholastic career was brief and creditable, as would be expected from a student possessed in so marked a manner of the virtues of industry and punctuality and the talent of a lucidity amounting almost to genius. In 1847 he was admitted a Member of the Royal College of Surgeons of England, and in 1848 he graduated as Bachelor of Medicine at the University of London, where he was University Medical Scholar. In 1852 he was admitted a Fellow of the Royal College of Surgeons, from which date he devoted himself entirely to surgical teaching and practice. His first teaching appointment was that of Demonstrator of Anatomy at St. Bartholomew's Hospital, and this was followed by his succeeding Sir James Paget in 1859 as Demonstrator and Lecturer in Physiology. He was elected assistant surgeon to the hospital on April 24th, 1861, and full surgeon on the same day in 1867. This latter position he held until Nov. 12th, 1891, when he resigned, and was at once elected consulting surgeon, which office he held until his death. In May, 1869, he was appointed Joint Lecturer on Surgery with Mr. Coote, and ten years later, on the death of Mr. Callender, was made sole lecturer, which position he retained until 1889, when he resigned his post.

SIR WILLIAM SCOVELL SAVORY, BART., F.R.S.

As a lecturer Sir William Savory was a worthy successor of Lawrence, Paget, and West, resembling in manner and delivery Lawrence the most. His lectures were absolute models. Clear, lucid, every sentence weighed and polished, with diction perfectly distinct, the mobile, sensitive face would brighten with a singularly charming smile as he referred to his great predecessors in the field of surgery; all this made his lectures appear something very different to the ordinary routine of the work of a medical school, and so they were felt to be by all his pupils. Not only did the students of the hospital—sometimes, it must be said, slow to recognise an intellectual treat—attend and listen, but many a man from the staff of other hospitals came and profited by the great teacher's clear logic and intense sympathy with his subject. In his visits to the wards he was sparing of speech and the value of his clinical teaching was more in what he did than in what he said. Those who took the pains to watch his practice could always draw from it clear rules and close reasonings. But he was not a popular bedside teacher. His extreme modesty, so graceful in one possessing such splendid endowments, repressed the outpouring of his abundant thoughts and gave to his public manner a certain degree of severity. In the student he oftentimes inspired something akin to awe, which was due to his impressive demeanour and eagle glance (it is a hackneyed phrase, but the only one that really expresses the quality of his acute gaze), a glance which inspired an uneasy consciousness that ignorance under its influence was certain to betray itself. But he was always ready to impart information and would take much trouble to discuss any subject of interest propounded by an intelligent questioner, pouring forth for his benefit a flood of light and knowledge. Perhaps he was seen at his best in the operating theatre on consultation days, when, in the discussion of an obscure or doubtful case, no one could excel him in the manner in which he would state the possible causes of the symptoms observed or in explaining the reasons which made him take up the particular view he held. Without being a brilliant operator he had the advantage of being ambidextrous, a faculty that on occasion served him well. Like that of his master, Lawrence, his surgery was eminently sound, and his results compared favourably with those of others both before and after the introduction of rigid asepsis. If he was slow to adopt innovations, it was the effect of a righteous desire not to endanger the patient's chances by anything in the nature of an experiment. As an operator he trod the highways of surgery. He was very sure in all that he did, and the patient ran no risk of injury in addition to that pertaining to the operation. With a nervous system highly strung it was no wonder that at times during an operation he should show signs of the strain, but he never lost his self-possession, and in moments of the greatest excitement, even of dire emergency, his intellect maintained its sway and directed his hand aright.

The position that he gained in the medical profession would have been his, we believe, in that of the law. His clear and subtle as well as logical mind would have found a congenial field in summing up an intricate chain of evidence. He would have shone on the bench. He had a singular faculty of unfolding an argument in a calm judicial manner, his ideas flowing in due sequence, the language being always equal to the occasion, and the opinions delivered with a voice of skilled modulation and without the slightest hesitation. His opinion consequently carried great weight with it. He was ready, too, in debate, carrying out his early promise to which we have referred. No one could be more prompt to detect a flaw in an opponent's argument or quick to expose it with pitiless sarcasm and ridicule; yet he was not easily put out of temper, and bore buffeting with a smile. This dialectic facility showed itself to great advantage in the somewhat heated debates which took place at the Royal College of Surgeons of England during his Presidency with reference to reforms in the government and constitution of that body. For though many a time he stood almost alone as regarded his views in the presence of a large body of opponents, he seldom failed to make his point or to keep matters in the paths which, rightly or wrongly, he regarded as the safest and best for the interests of the College.

In every branch of learning he was capable of making the best of what he knew. On one occasion he had just laboriously, with dictionary in hand, gone through the book of the "Odyssey," then required by the regulations for the preliminary examination for the Fellowship, and in a circle of some half-dozen men, the late Professor Rolleston, a most accomplished Greek scholar, made a casual remark to the effect that there was no example of a word with a certain number of feet at the close of a line in Homer. Savory objected, and, to Rolleston's intense astonishment, quoted the line he had only the previous evening read, in refutation of the really learned classic's view. He had a great faculty for criticism, and enjoyed nothing more than to discuss and comment upon the characters and situations in the books he read. He was not a voluminous writer, but his essays on Pyæmia, which appeared in the St. Bartholomew's Hospital Reports, and his scholarly "Lectures on Life and Death," delivered at the Royal Institution, are classics. He was very reserved, and modest to a fault, a thorough and sincere Christian, though he never paraded his religion.

These are the main facts in Sir William Savory's career, and the salient qualities of his character. They tell a simple, straightforward story of honesty, industry, and high intellectual endowment meeting with their due rewards, and as such require no commentary from our pen. The unique esteem in which he was held by the surgeons of his time is testified by the fact that he was President of the Royal College of Surgeons of England for five years in succession, an absolutely unprecedented occurrence; while the royal favour of a baronetcy was not without special features in his case, as it is an open secret that he had refused lesser honours. So passes a great man, not only from his professional ability, but from his hatred of shams and self-advertisement—one who, like his great master, John Hunter, was, to use his own words, "tempted by no seductive theory into undue haste, was hardly ever lost in an unsound conclusion. ..... A man of indefatigable industry, of unquenchable energy, of singleness of purpose, and unbounded sacrifice."[1]

A few details of his last illness will be read with melancholy interest. On Thursday, Feb. 21st, he complained of not feeling well and consulted Dr. Habershon, who took him on the next day to see Dr. Pavy. Some slight improvement was manifest until the 28th, on which day he visited St. Bartholomew's Hospital. There were several cases of influenza in the house, and on the morning of March 1st his temperature, which was subnormal on the previous day, was found to be elevated, though beyond a slight bronchial catarrh none of the specific symptoms of influenza were present. Sir William Savory was, however, kept to his room, and on the following day symptoms of bronchitis supervened, though at no time severe, and his strength was well maintained until the afternoon of Sunday, the 3rd inst., when for the first time signs of prostration and cardiac failure appeared. At night there was a decided rally, with improved pulse and lower temperature. During the early hours of Monday morning, the 4th inst., the temperature again rose, sudden and profound collapse set in, and in spite of all that the most active stimulation and the most assiduous care could do, he sank at 10.30 A.M. During his illness he was under the care of Dr. Pavy and Dr. Habershon, and was nursed by his daughter-in-law and Sister John from St. Bartholomew's Hospital.

Sir William Savory married in 1854, on his birthday, the daughter of William Borradaile. She died in 1868. By her he had one son, who succeeds him in the title and is incumbent of St. Bartholomew the Great, Smithfield.

A memorial service was held on Thursday in St. George's, Hanover-square, at 1.30 P.M., and the interment took place in Highgate Cemetery on the same day.

[1] The Hunterian Oration, 1887.

SAMUEL HOPPER ADAMS, M.D. LOND., M.R.C.S.

DR. ADAMS, who died on the 1st inst. after a final illness of a few hours' duration, was educated at the Bedford Modern School, whence he proceeded to University College Hospital. He matriculated at the same time at the University of London, obtaining high honours in Botany, a love of which science he retained throughout life. Professor Hillhouse of Birmingham and Professor Green of the Pharmaceutical Society owe, we believe, their first botanical training to Dr. Adams. He had a distinguished career at the University of London, where he took his M.B. in 1859 as a medalist, and proceeded to the M.D. degree in 1861, having become M.R.C.S. in 1858. At an early period of his professional life he served as a surgeon in the Peninsular and Oriental Company. During this time he had an attack of sunstroke in the Red Sea, to which may be traced the weak state of his health in after years. He settled in Bedford, where for several years he was in partnership, but afterwards practised independently. He was greatly esteemed by his patients and by his medical brethren. His unobtrusive and kindly manner, together with his knowledge of many scientific subjects, procured him many friends. His position as surgeon to the Bedford Provident Dispensary brought him in contact with a large number of the humbler classes, to whom he greatly endeared himself, and who showed their appreciation of his faithful services by following his remains to the grave. He was buried according to the rites of the Moravian Church, of which he was a member and a churchwarden. He leaves a widow and three children.

SAMUEL CHARLESWORTH HIRST, M.D. ST. AND., M.R.C.S. ENG., L.S.A. LOND., J.P.

GENERAL regret has been caused among a large circle in Bradford by the announcement of the death of Dr. Hirst, late of Planetrees House, Laisterdyke, Bradford, who passed away at Southport on Feb. 27th. It is only about eighteen months since he left Bradford, where he had practised for more than twenty years and had made many friends by his benevolence and zeal for good works. Having studied at the Leeds School of Medicine he qualified as M.R.C.S. in 1861 and as L.S.A. in 1867. In 1887 he graduated as M.D. at St. Andrews University. He was a consistent but not an aggressive politician, and was one of the Bradford borough magistrates.

MARSHALL HALL HIGGINBOTTOM, M.R.C.S. ENG., L.S.A. LOND.

THE death is announced of Mr. Higginbottom of Nottingham, who succumbed on Feb. 24th to an attack of pneumonia. The deceased gentleman, who was born in 1822, was a son of Mr. John Higginbottom, F.R.S., of Nottingham, and a nephew of the celebrated Dr. Marshall Hall of London. He was a student at Guy's and St. Thomas's Hospitals, and after having obtained the diploma of the Royal College of Surgeons of England in 1844, and that of the Apothecaries' Society in 1845, he travelled to Constantinople and other parts of Eastern Europe. Returning to England he went into partnership with his father, and lived to be one of the oldest members of the medical profession in Nottingham.

Medical News.

UNIVERSITY OF LONDON.—The following candidates passed the Intermediate Examination in Medicine in January, 1895:—

ENTIRE EXAMINATION.

SECOND DIVISION.

Arthur, Joseph Hugh, London Hospital.
Bell, William Blair, King's College.
Bennett, Harry Charles Plant, St. Bartholomew's Hospital.
Bergin, William Marmaduke, University College, Bristol, and Clifton Laboratory.
Brown, Robert Pollock, St. Bartholomew's Hospital.
Chennells, Ernest Philip, University College.
Christian, John Beresford, St. George's Hospital.
Clegg, William Wheelwright, Leeds, and Middlesex Hospital.
Clifford, Frank Charles Weeks, King's College.
Cobbledick, Arthur Stanbury, Bristol Medical School.
Evans, Evan, Guy's Hospital.
Fitz-Hugh, Richard Truman, Guy's Hospital.
Harris, Lucy Elizabeth, London School of Medicine and Birkbeck Institute.
Hasslacher, Francis Joseph, King's College.
Hodgson, Cortis Rawsthorne, Guy's Hospital.
Knowles, Beatrice, London School of Medicine and Birkbeck Institute.
Lewin, Octavia Margaret S., London School of Medicine for Women.
Lucas, Joseph John Scammell, B.A., Bristol Medical School.
Lynch, Stephen Frederick, King's College.
Maxwell, Richard, London Hospital.
Mayston, Robert William, Guy's Hospital.
Michôd, Frederic Archibald Hope, St. Mary's Hospital.
Moore, Julius, Guy's Hospital.
Mortimer, William Craddon, London Hospital.
Payne, Alfred Ernest, St. Mary's Hospital.
Phipps, John Hare, Owens College.
Pritchard, Frank, Owens College.
Starling, Hubert John, Guy's Hospital.
Varley, William Crowther, Owens College.
Walker, William Percival, Owens College.
Walter, Albert Elijah, Middlesex Hospital.
Webb, Bertha Margaret, London School of Medicine for Women.
Wernet, August Joseph, Guy's Hospital.
Wilshaw, Robert Heywood, Owens College.
Woodcock, Harold Brookfield, Owens College.

EXCLUDING PHYSIOLOGY.

SECOND DIVISION.

Baker, Alfred Eaton, Middlesex Hospital.
Bletchly, George Playne, Middlesex Hospital.
Durrant, Charles Edwin, St. Thomas's Hospital.
East, William Norwood, Guy's Hospital.
Günther, Hermann Arthur, University College.
Hall, Edmond Stokes, Guy's Hospital.
Hunt, Edward Lewis, St. George's Hospital.
Marriage, Herbert James, St. Thomas's Hospital.
Maxwell, James Laidlaw, St. Bartholomew's Hospital.
Moore, Percy, Guy's Hospital.
Northcote, Percy, St. Thomas's Hospital.
Smith, Daniel Lloyd, Guy's Hospital.
Thornton, Jeremiah, London Hospital and Birkbeck Institute.

PHYSIOLOGY ONLY.

FIRST DIVISION.

Scatchard, James Percival, St. Thomas's Hospital.
Smith, Stanley Francis, St. Bartholomew's Hospital.

SECOND DIVISION.

Emms, Harry Robert, University College.
Goode, Henry Norman, St. Thomas's Hospital.
Greenwood, Frank Redmayne, Mason College.
Harcourt, John Charles, St. Thomas's Hospital.
Manteil, Hugh Fraser, St. Mary's Hospital.
Mundy, Herbert, St. Bartholomew's Hospital.
Read, Charles Stanford, University College.
Rivière, Clive, St. Bartholomew's Hospital.
Seal, Francis Montgomery, University College.
Shepherd, Ernest, St. Mary's Hospital.
Sibley, Reginald Oliver, St. Mary's Hospital.
Sugden, Henry, St. Mary's Hospital.
Trimble, Charles Edward, University College, London, Edinburgh University, and Extra-mural School.
Wrangham, William, St. Bartholomew's Hospital.

LITERARY INTELLIGENCE.—The following works are announced by Messrs. J. & A. Churchill as nearly ready for publication:—"Mental Physiology, especially in its relation to Mental Disorders," with Illustrations, by Dr. T. B. Hislop, Assistant Physician, Bethlem Royal Hospital; "Elements of Health, an Introduction to the Study of Hygiene," with twenty-seven Illustrations, by Dr. Louis C. Parkes, Medical Officer of Health for Chelsea; and a "Manual of Botany," based on that of the late Professor Bentley, containing many new illustrations: Vol. I. "Morphology and Anatomy," by J. Reynolds Green, Sc.D., M.A., F.L.S., Professor of Botany to the Pharmaceutical Society of Great Britain and Examiner in Botany to the Universities of London and Glasgow.

HUNTERIAN SOCIETY.—At the first general meeting of the session for 1895–96, held at the London Institution on Feb. 27th, Mr. Charters J. Symonds, President, being in the chair, Professor Clifford Allbutt, Regius Professor of Medicine in the University of Cambridge, delivered the Hunterian Society Lecture. Professor Allbutt chose as his subject Senile Plethora or High Arterial Pressure in Elderly Persons. He first narrated several cases typical of the condition. They all presented the same features, "symptoms obscure in so far as any particular parts or organs were concerned, but obvious and miserable enough otherwise"; the patients were sluggish, sleepless, wretched on awaking of a morning, nervously perturbed," with "some of the classical symptoms of hysteria." In all there was a remarkably hard pulse with "thudding" aortic valve sound, and none of them showed any feature in the urine leading to any suspicion of incipient or established renal disease. All of them were relieved by drugs adapted to lower blood pressure, and relieved most strikingly. Occasional mercurial and saline purges and a course of iodide of potassium, pushed freely, the lecturer had found to give almost complete relief; nitro-glycerine was also useful. Professor Allbutt then proceeded to discuss the meaning and pathology of the condition. He had found it commoner in women than in men; gout, either declared or suspected, was much oftener absent than present, and renal disease and arterial degeneration were conspicuous by their absence also; and even "renal inadequacy" could be excluded; that the blood in senile plethora is at fault, primarily or secondarily, is probable; and that it is altered in some way which sets up peripheral arteriolar contraction was the conclusion, but "beyond this I feel unable to proceed, if, indeed, I ought to go so far." Notwithstanding his declared inability to elucidate completely the pathology of the condition, Professor Allbutt concluded his lecture with some most thoughtful and thought-arresting considerations of its possible etiological factors of such intense interest to his audience that a unanimous wish was expressed to see them published in full. After a hearty and sincere vote of thanks to the lecturer the meeting adjourned.

ROYAL FREE HOSPITAL, GRAY'S-INN-ROAD.—The sixty-seventh annual court of the governors was held on Feb. 27th, under the presidency of Sir Julian Goldsmid, Bart., M.P., one of the Vice-Presidents of the hospital. There was a good attendance of governors, amongst whom were the following: Sir Gainsford Bruce, General Gordon Pritchard, C.B., Mr. Edward Masterman, Colonel Montefiore, Mrs. Garrett Anderson, M.D., Mr. A. Boyce Barrow, Mrs. Stanley Boyd, Mr. Holroyd Chaplin, Mr. Robert Hampson, Dr. T. Crawford Hayes, Mr. J. Miley, Mr. J. Grosvenor Mackinlay, Mr. F. G. Prideaux, Mr. G. F. Sheppard, J.P., and Mr. Henry Silver. Owing to the prevalence of influenza many governors were prevented from attending, among others being Sir Charles Hall, Q.C., M.P., Right Hon. James Stansfeld, Sir Henry Oakley, Dr. Alex. E. Marsden, and Mr. H. N. Custance. The report for the past year was read by Mr. C. W. Thies, the secretary. Sir Julian Goldsmid, in moving the adoption of the report, stated that the new front building completed the work of reconstruction commenced forty years since, and provided greatly improved accommodation for casualty patients, dispensary, resident medical officers and servants, also much-needed isolation wards; and that many other important and necessary improvements had been carried out in various parts of the hospital. The total cost of the works had been about £30,000, towards which the sum of £24,000 had been raised, leaving a deficit of about £6000. The chairman appealed to the public to help the committee by providing the sum still needed, so that the new buildings might be opened free from debt. The medical reports showed that the number of patients treated during the past year was 30,337, as compared with 28,274 in the preceding year. The total ordinary receipts for 1894 (exclusive of legacies) had been £5255 13*s.* 9*d.*, against expenditure amounting to £9753 7*s.* 6*d.*, the deficiency having been met partly by the legacies received and partly by encroaching upon the small reserve funds. The chairman strongly urged the claims of the charity upon the benevolent public, and stated that the small income derived from annual subscriptions was most inadequate, and he trusted that this would be augmented in the future. The committee of management, finance committee, treasurer, and auditors were duly elected, and a vote of thanks to the chairman closed the proceedings.

MEDICAL MAGISTRATES.—Dr. Alexander Macgregor of Aberdeen, and Dr. John Charles O. Will of the same city, have been placed on the Commission of the Peace for the county of Aberdeen.—Mr. Adam Wilkinson, M.D. Brux., F.R.C.S. Edin., &c., Shaftesbury, has been placed on the Commission of the Peace for the county of Dorset.

THE annual meeting of the East London Nursing Society will be held (by kind permission of the Lord Mayor) in the saloon at the Mansion House on Tuesday, March 12th, at 3 P.M. The chair will be taken by the Right Hon. the Lord Mayor, who will be supported by the Rev. Canon Elwyn (Master of the Charterhouse), Dr. Clement Godson, the Rev. J. F. Kitto (Vicar of St. Martin's, Charing-cross), the Rev. E. Hoskyns (Rector of Stepney), the Rev. F. Gurdon (Rector of Limehouse), and the Rev. Prebendary Harry Jones (Chairman of the Executive Committee).

MIDDLESEX HOSPITAL.—The annual meeting of the governors of the Middlesex Hospital was held on Feb. 28th, Mr. A. Pearce Gould presiding. The 150th yearly report was presented, and showed that the expenditure had exceeded the receipts by £1995. Sympathetic references were made to the death of Mr. J. W. Hulke, senior surgeon of the hospital, and President of the Royal College of Surgeons of England; the resignation of the chairman, Lord Sandhurst, in consequence of his important duties in India, was also a subject of regret, and his lordship was unanimously elected a vice-president. A new operating theatre has been built and will be completed in a few weeks.

WEST LONDON HOSPITAL.—The annual meeting of the governors of this hospital was held, on March 4th, at Hammersmith, Mr. W. Bird presiding. The thirty-eighth yearly report was presented, and made grateful mention of the Royal Charter of incorporation granted to the hospital last November. The extension of the hospital premises is making satisfactory progress, and when complete will enable eighty beds to be added to the present accommodation. The cost of these buildings is estimated at £20,000, of which £3500 have been already received. The expenditure for 1894 had exceeded the income, notwithstanding an increase of £39 in subscriptions, of £616 in donations, of £70 in the grant from the Metropolitan Hospital Sunday Fund, and of £740 in legacies.

ROYAL SURREY COUNTY HOSPITAL.—The Bishop of Winchester presided on Feb. 23rd at the annual court of governors of the Royal Surrey County Hospital, Guildford. Lord Midleton, the Hon. W. St. John Brodrick, M.P., Canon Haig-Brown, Headmaster of Charterhouse, Mr. E. J. Halsey, Chairman of the Surrey County Council, and the Mayors of Guildford and Godalming were also present. The annual report of the committee showed improvement in the financial position. The county meeting held at Guildford last October, under the presidency of H.R.H. the Duke of Connaught, with the object of obtaining £3300 to defray the expenses of new drainage and to build a new block for nurses, resulted in £1473 being raised, but before the building of the new block could be commenced a further sum of £1780 was required. Several subscriptions were announced at the meeting, among others £500 from a gentleman who remained anonymous and sent his donation through Mr. St. John Brodrick.

FOOTBALL CASUALTIES.—On the 23rd and 27th ult. and the 2nd inst. the following accidents occurred. While playing a match between the Aldershot Division and Blackheath a sergeant of the Royal Scots Greys fractured one of his legs, and was removed to the hospital.—During a match at East Acton between the Shepherd's Bush and Hammersmith Athletic Clubs, a player of the latter club fractured his leg and was taken to the West London Hospital.—A youth aged seventeen years, while playing a game on Southwark Park, fractured his right leg and was admitted to Guy's Hospital.—At Sunderland, in a match between Sunderland and Sheffield United teams, a player dislocated his humerus.—While playing a match at Cambridge for his College a player fractured his leg.—At Doncaster, during the Midland League match between the Doncaster Rovers and Kettering teams, one of the latter team "headed the ball while he had his tongue out of his mouth, and bit it so badly that it was nearly severed."—In the course of an English cup tie, for Middlesbrough against Darlington, a player sustained "a serious fracture of the hip-bone," and was conveyed to the North Riding Infirmary, Middlesbrough.—During a game at Arundel a player fractured his leg, "the lower part of which was completely shattered and splintered." During a match at Hexham on Saturday last, between the Tynedale and Northern second teams, a player aged twenty-three years of the Tynedale team, received serious injuries, from which he died on the 5th inst.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Factories and Workshops Bill.

MR. TOMLINSON has given notice that when the Factories and Workshops Bill is read a second time he will move "that it be an instruction to the Committee that they have power to insert in the Bill provisions for extending its operation to post-offices and Government factories and workshops, and for prohibiting or restricting the importation into the United Kingdom of goods manufactured or treated in foreign countries otherwise than in accordance with the provisions of the Bill."

HOUSE OF COMMONS.

THURSDAY, FEB. 28TH.

The Drainage of the Tower of London.

Mr. Campbell-Bannerman, replying to a question, said that a thorough investigation of the drainage system of the Tower was completed last month, with the result that the system generally was not found to be defective. Some minor defects were found, and they were receiving attention.

THURSDAY, MARCH 7TH.

The Tuberculosis Committee.

Replying to a question put by Sir Matthew White Ridley, Mr. Shaw-Lefevre, President of the Local Government Board, said he trusted that the labours of this Committee might soon be concluded.

The Chicago Meat Factories.

In reply to Mr. Jeffreys, Mr. Herbert Gardner said he had read the article in the *Times* giving details concerning the preparation and packing of diseased meat at Chicago for export to England, and he proposed to make inquiry through the Foreign Office respecting it, and as to the arrangements in force in the United States for the prevention of the spread of disease. He should be very happy to bring under the notice of the President of the Local Government Board any information which might reach him as to the existence of danger to public health arising from the importation of diseased food products.

The Marking of Foreign Meat.

Mr. Jeffreys asked the President of the Board of Agriculture whether he was prepared to introduce a Bill for the purpose of registering dealers in foreign and colonial meat, and of inspecting retail butchers' shops under the Food and Drugs Act by duly qualified inspectors?—Mr. Gardner called the attention of the hon. member to the amendment made last year in the Merchandise Marks Act, and said that the law as it now stood seemed to be sufficient to deal with the evil, and no further legislation was required.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.

ADAMS, A. S., M.B., C.M. Aberd., has been appointed Parochial Medical Officer for the Parish of Alness.

ALDRICH, A. W., L.R.C.P., L.R.C.S., L.M. Edin., has been appointed Medical Officer for the Worlington Sanitary District, and the Workhouse of the Mildenhall Union.

ARNOLD, G. J., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

BARLING, H. GILBERT, M.B. Lond., B.S., F.R.C.S., has been appointed Honorary Consulting Surgeon to the Birmingham General Dispensary.

BLACKER, A. BARRY, M.D., B.S. Durh., L.R.C.P., M.R.C.S., has been reappointed Clinical Assistant in the Department for Diseases of the Throat at St. Thomas's Hospital.

BOYD, JOHN J., M.B., C.M. Glasg., has been appointed House Surgeon to Grey's Hospital, Pietermaritzburg, Natal.

BRAKENRIDGE, F. J., L.R.C.P., M.R.C.S., has been appointed Non-resident House Physician to St. Thomas's Hospital.

BRYCE-ORME, WM., has been appointed Senior Assistant Medical Superintendent at St. Pancras Infirmary by the St. Pancras Board of Guardians.

CARTER, ALFRED H., M.D. Lond., M., F.R.C.P., M.R.C.S., has been appointed Visiting Medical Officer of the Workhouse, Parish of Birmingham.

CREW, JOHN, L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer of Health for the Higham Ferrers Urban Sanitary District, vice Clark, resigned.

DAVIS, H. J. B.A., Cantab., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant in the Department for Diseases of the Ear at St. Thomas's Hospital.

GENGE, G. G., L.R.C.P., M.R.C.S., has been reappointed Resident House Physician to St. Thomas's Hospital.

GOSSAGE, A. M., M.B., B.Ch. Oxon., M.R.C.P. Lond., has been appointed Assistant Physician to Westminster Hospital.

HALLIWELL, T. O., L.R.C.P., M.R.C.S., has been reappointed Clinical Assistant in the Department for Diseases of the Throat at St. Thomas's Hospital.

HARDING, H. W., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

HAWARD, H. H., L.R.C.P., M.R.C.S., B.A. Cantab., has been reappointed Clinical Assistant in the Department for Diseases of the Skin at St. Thomas's Hospital.

HEGINBOTHAM, H. J., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer to the Wymeswold District of the Loughborough Union, vice John Bostock, M.R.C.S., resigned.

HOME, A. L., L.R.C.P., M.R.C.S., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

JACOBSEN, G. OSCAR, M.R.C.S., L.R.C.P., has been appointed Medical Officer of Health for Prestcign.

LAVER, J. W., L.R.C.P., M.R.C.S., has been appointed Non-resident House Physician to St. Thomas's Hospital.

MATTHEWS, JAS. F., M.R.C.S. Eng., L.S.A., has been appointed Officer of Health for the Yea Shire, Victoria, Australia, vice Lang, resigned.

MCDOUGALL, P., M.B., B.S. Vict. Univ., has been appointed House Surgeon for six months to the Manchester Royal Infirmary.

MILWARD, F. V., B.A., M.B., B.C. Cantab., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant in the Department for Diseases of the Ear at St. Thomas's Hospital.

MONCKTON, WM., L.R.C.P. Edin., L.M., M.R.C.S., has been reappointed Medical Officer of Health to the Portishead District Council.

O'BRIEN, J. W., M.B., Ch.B. Dubl., L.R.C.S. Irel., has been appointed Officer of Health for the Warrnambool Shire, Victoria, Australia.

ODELL, R., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the third Sanitary District of the Hertford Union, vice Wylie, resigned.

PLOWMAN, SIDNEY, L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Officer of Health for the Frankston and Hastings Shire, Victoria, Australia, vice Wilson, resigned.

POMFRET, H. W., M.D. Vict., Ch.B., L.R.C.P. Lond., F.R.C.S., has been reappointed Surgical Registrar, Manchester Royal Infirmary.

PRAIN, J. L., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant in the Department for Diseases of the Throat at St. Thomas's Hospital.

RICKARDS, E., M.B., Oxon, L.R.C.P. Lond., M., F.R.C.S., has been appointed Honorary Consulting Physician to the Birmingham General Dispensary.

RICHARDSON, S. W. F., M.B., B.S., B.Sc. Lond., L.R.C.P., M.R.C.S., has been appointed Junior Obstetric House Physician to St. Thomas's Hospital.

RUSSELL, A. E., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

SAUNDERS, E. A., M.A., M.B., B.Ch. Oxon., L.R.C.P., M.R.C.S., has been reappointed Resident House Physician to St. Thomas's Hospital.

SYMONS, R. FOX, L.R.C.P., M.R.C.S., has been appointed House Surgeon to St. Thomas's Hospital.

THURSTON, E. O., L.R.C.P., M.R.C.S., has been appointed Assistant House Surgeon to St. Thomas's Hospital.

TINLEY, W. E. F., L.R.C.P., M.R.C.S., M.B., B.S. Durh., has been appointed Senior Obstetric House Physician to St. Thomas's Hospital.

THOMSON, J. A. M., L.R.C.P., L.M., L.R.C.S. Irel., has been appointed Medical Officer of Health by the Rural and Urban Districts Councils, Bradford-on-Avon.

WALLACE, L. A. R., B.A., M.B., B.Ch. Oxon., L.R.C.P., M.R.C.S., has been appointed Clinical Assistant in the Department for Diseases of the Skin at St. Thomas's Hospital.

WELLAND, C. H., L.R.C.P. Lond., M.R.C.S., has been appointed House Physician for six months to the Manchester Royal Infirmary.

WILLIAMSON, H. M. L., L.R.C.P., L.R.C.S. Edin., has been appointed Medical Officer for the Northern Sanitary District of the Lancaster Union.

WILLIAMSON, R. T., M.D. Lond., B.S., M.R.C.P., M.R.C.S., has been reappointed Medical Registrar, Manchester Royal Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BELGRAVE HOSPITAL FOR CHILDREN.—House Surgeon. Board, lodging, fuel and light provided. Applications to honorary secretary at the hospital, 79, Gloucester-street, S.W.

CAMBERWELL HOUSE, 33, Peckham-road, Camberwell.—Assistant Medical Officer in a large Metropolitan asylum, unmarried. Salary to begin at £100 per annum, with board, lodging and washing. Applications to the Medical Superintendent to Camberwell House, 33, Peckam-road, Camberwell.

CITY OF GLASGOW DISTRICT LUNACY BOARD.—Medical Superintendent to the New Asylum at Gartloch, near Glasgow. Salary at the rate of £450 per annum, with free house, coal, gas, &c. Applications to the Clerk to the Board, 318, Parliamentary-road, Glasgow.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park, E.—House Physician, for six months. Board and residence and allowance for washing provided. Applications to the Secretary, office, 24, Finsbury-circus, E.C.

COTTAGE HOSPITAL, near Loughton.—Medical Officer. Small honorarium, £20. Applications to the Secretary of "Oriolet," care of 163, Queen Victoria-street, London, E.C.

FISHERTON ASYLUM, Salisbury.—Assistant Medical Officer, single. Salary £100 per annum, with board, lodging, and washing. Applications to Dr. Finch, Salisbury.

HORTON INFIRMARY, Banbury.—House Surgeon and Dispenser. Salary £60 per annum, with board and lodging.

LONDON HOSPITAL, Whitechapel, E.—Surgical Registrar. Salary £100 per annum.

LONDON MALE LOCK HOSPITAL, 91, Dean-street, Soho, W.—House Surgeon, out-patients' department. Salary £50 per annum, with board, lodging and washing.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, and Assistant House Surgeon. The appointments tenable for six months. Salary House Physician and House Surgeon, each at the rate of £60 a year.

OLDHAM INFIRMARY.—Junior House Surgeon. Salary £50 per annum, with board and residence.

PARISH OF BIRMINGHAM.—Resident Assistant Medical Officer for the Workhouse Infirmary. Salary £100 per annum, with furnished apartments, rations, &c. (which do not include alcoholic liquors), coals, gas, washing, and attendance. Applications to the Clerk to the Guardians, Parish Offices, Edmund-street.

RADCLIFFE INFIRMARY, Oxford.—Honorary Physician.

ROYAL UNITED HOSPITAL, Bath.—House Surgeon, for six months. Salary £60 per annum, with board, lodging, and washing.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, Bloomsbury, W.C.—Medical Registrar and Pathologist, for one year. An honorarium of 50 guineas voted at the end of that term.

VICTORIA HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Edinburgh.—Resident Physician, for six months. Apartments, board, and washing, with allowance of £2 monthly for conveyance in connexion with out-door department. Applications to the Hon. Secs., 1, North Charlotte-street, Edinburgh.

WESTERN GENERAL INFIRMARY, Marylebone-road, N.W.—Junior House Surgeon, unmarried. Salary £50 per annum, with rooms and board.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician and House Surgeon for six months. Board and lodging provided.

Births, Marriages, and Deaths.

BIRTHS.

BAXTER.—On Feb. 28th, at Manningtree, Essex, the wife of W. Whittington Baxter, M.R.C.S., of a son.

BRAND.—On Feb. 25th, at St. Paul's-road, Northampton, the wife of G. H. Brand, Surgeon, of a son.

BURNS.—On Feb. 19th, at Hamslade, Sweyn-road, Margate, the wife of Alfred Hugh Burns, L.R.C.P., L.S.A., of a son.

CASSIDY.—On Feb. 4th, at Purneah, Bengal, the wife of Surgeon-Captain C. Clemons Cassidy, Indian Medical Service, of a son.

FAWSSETT.—On Feb. 28th, at High-street, Lewes, Sussex, the wife of Frank Fawssett, M.B., B.S. Lond., of a son.

FOX.—On March 3rd, at Brislington House, near Bristol, the wife of Bonville Bradley Fox, M.D., of a daughter.

HETLEY.—On March 5th, at Beaufort House, Church-road, Norwood, the wife of Dr. Henry Hetley, of a daughter.

PASSMORE.—On March 4th, at Tennyson House, Gainsborough, Lincs., the wife of John E. S. Passmore, M.R.C.S., L.R.C.P., of a son.

PHILLIPS.—On March 1st, at Grosvenor-street, W., the wife of John Phillips, M.A., M.D., F.R.C.P., of a son.

STURROCK.—On March 2nd, at Arima, Broughty Ferry, N.B., the wife of J. F. Sturrock, M.B., L.R.C.S.E., of a daughter.

THATCHER.—On Feb. 28th, at Melville-crescent, Edinburgh, the wife of Charles H. Thatcher, F.R.C.S.E., of a daughter.

WILSON.—On Feb. 28th at Goldhawk-road, Shepherds Bush, London, W., the wife of Dr. James Wilson of a daughter.

MARRIAGES.

GREEN—HODGKINSON.—On Feb. 20th, at Holy Trinity Church, South Crosland, by the Rev. W. Le Neve Bower, Vicar, Thomas Arthur Green, M.B., C.M., eldest son of John Green, Heslaker, Skipton, to Selena, daughter of John Hodgkinson, Woodlands, Honley. At Home, Netherton, March 13th, 14th, 20th, and 21st.

DEATHS.

BROUGHTON.—On Feb. 26th, at Fyning, Guilford, James Wardrop Broughton, M.D., aged 82.

CHANCE.—On Feb. 25th, at his residence, Russell-square, London, W.C., Edward John Chance, F.R.C.S. Eng., F.G.S., F.L.S., formerly of Old Broad-street, City, late Consulting Surgeon to the Metropolitan Hospital, Kingsland-road, N., and Senior Surgeon and Honorary Secretary to the City Orthopædic Hospital, Hatton-garden, E.C., aged 88.

DE CRESPIGNY.—On Feb. 15th, at Crowcombe, Beckenham, Eyre Champion de Crespigny, M.D., of the Bombay Medical Service, aged 72.

GILCHRIST.—On Feb. 28th, at Alverstoke, Rochester, Surgeon-Major W. Gilchrist, M.D., late H.E.I.C.S., aged 88.

KING-PEIRCE.—On Feb. 27th, at Mentone, France, Richard King-Peirce, M.R.C.S., aged 72.

ROGERS.—On March 4th, at the Royal Naval Hospital, Stone-house, Edward Allan Rogers, Surgeon, R.N.

RUDD.—On Feb. 24th, at San Remo, Italy, Surgeon-Major General T. Rudd, M.D.

SAVORY.—On March 4th, at Brook-street, W., Sir William Savory, Bart., F.R.S., in his 69th year.

SEMPLE.—On March 5th, Charles Edward Armand Semple, M.D., M.R.C.P. Lond., of Marlborough-hills, Harrow, and Torrington-square, London, W.C., aged 50.

TUKE.—On March 5th, at Welbeck-street, W., Daniel Hack Tuke, M.D., LL.D., F.R.C.P., aged 68, after a very short illness.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (1 P.M.), St. Mark's (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynecological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.).

TUESDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1.30 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Gt. Northern Central (2.30 P.M.).

WEDNESDAY.—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (2.30 P.M.), Gt. Ormond-street (9.30 A.M.).

THURSDAY.—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (2 P.M.), Soho-square (2 P.M.), North West London (2 P.M.).

FRIDAY.—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.).

SATURDAY.—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), Cancer (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY.—MEDICAL SOCIETY OF LONDON.—8.30 P.M. Dr. Hector Mackenzie: A case of Hysterical Deafness successfully treated, with some Remarks on the Diagnosis and Treatment of this Affection.—Mr. Bruce Clarke: Thirty cases of Nephrorrhaphy, with their results.

TUESDAY.—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—Adjourned Discussion on "Affections of the Nervous System occurring in the Early (Secondary) Stages of Syphilis," to be opened by Sir William Broadbent and Dr. Althaus.

WEDNESDAY.—LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-sq., W.).—5 P.M. Discussion on "The Diagnosis and Treatment of Empyema of the Antrum of Highmore." (Members of the Odontological Society have been invited to take part.)

HUNTERIAN SOCIETY (London Institution).—8.30 P.M. Mr. Hope Grant: Stricture of Œsophagus.—Dr. Fred. J. Smith: Cerebral Tumour.—Dr. Hingston Fox: Gall Stones.—Mr. Openshaw: (1) Gall Stone removed by operation from Ileum; (2) Congenital Sacral Tumour.

THURSDAY.—BRITISH GYNÆCOLOGICAL SOCIETY.—Specimen by Mr. Bowreman Jessett.—Dr. Macnaughton Jones: The Dangers of Morphia in Gynecological Practice.—Dr. Wm. Walter: Notes of a case of Leakage of a Multilocular Ovarian Cyst in a Girl aged thirteen.

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—5 P.M. Dr. Waldo (Clifton): Notes of Cases. Exhibition of Patients, &c.

NORTH LONDON MEDICAL AND CHIRURGICAL SOCIETY (Great Northern Central Hospital).—8 P.M. Papers by Mr. Charles King, Dr. Christie, Dr. Burnet, and Mr. Macready.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.—8 P.M. Card Specimens by Messrs. S. Stephenson, A. Bronner, G. Hartridge, and Devereux Marshall. Papers:—Dr. G. Ogilvie: A case of Double Optic Atrophy with peculiar Visual Fields.—Dr. Argyll Robertson: A Female Filaria Loa.—Mr. Spencer Watson: A case of Foreign Body removed with a Traumatic Cataract.—Dr. Brailey: On a form of Iritis not usually recognised.—Mr. E. Treacher Collins: Blood-staining of the Cornea.

SOUTH WEST LONDON MEDICAL SOCIETY ("Stanley's," 235, Lavender-hill, Clapham-junct.).—8.30 P.M. Dr. Corfield: Foul Air and Disease.

FRIDAY.—EPIDEMIOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-sq.), 8 P.M. Dr. Joseph Priestley: The Value of Eucalyptus Oil as a Disinfectant in Scarlet Fever.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY.—LONDON POST-GRADUATE COURSE.—Royal London Ophthalmic Hospital, Moorfields, 1 P.M., Mr. W. Lang: Iritis.—London Throat Hospital, Gt. Portland-st., W., 8 P.M., Dr. Whistler: Syphilis as it affects the Larynx.

ROYAL COLLEGE OF SURGEONS.—5 P.M. Prof. Charles Stewart: A Revision of the Endoskeleton in the Physiological Series in the Museum of the College.

TUESDAY.—LONDON POST-GRADUATE COURSE.—Bethlem Hospital, 2 P.M., Dr. Hyslop: Insanity with Cardiac Disease, Phthisis, Gout, &c.

ROYAL INSTITUTION.—3 P.M. Prof. Charles Stewart: The Internal Framework of Plants and Animals (IX.).

ROYAL COLLEGE OF PHYSICIANS, LONDON.—5 P.M. Dr. Arthur Newsholme: Natural History and Affinity of Rheumatic Fever. (Third Milroy Lecture.)

WEDNESDAY.—NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Bloomsbury).—3 P.M. Lecture by Dr. Gowers.

ROYAL COLLEGE OF SURGEONS.—5 P.M. Prof. Charles Stewart: A Revision of the Endoskeleton in the Physiological Series in the Museum of the College.

LONDON SKIN HOSPITAL.—8 P.M. Dr. Sanctuary: Eczema.

LONDON POST-GRADUATE COURSE.—Royal London Ophthalmic Hospital, Moorfields, 8 P.M., Mr. A. S. Morton: Ocular Paralyses.—Hospital for Skin Diseases, Blackfriars, 1 P.M., Dr. Payne: Impetigo and Contagious Suppuration.

SOCIETY OF ARTS.—8 P.M. Mr. E. Montague Nelson: The Meat Supply of the United Kingdom.

THE SANITARY INSTITUTE (Parkes Museum, Margaret-street, W.).—8 P.M. A Discussion will be opened by Dr. James Niven on "Back-to-Back Houses, with Illustrations of various types of Back-to-Back Houses met with in practice, and the methods adopted for dealing with this class of property, by Mr. Thomas De Courcy Meade.

WEST LONDON HOSPITAL (Hammersmith, W.).—5 P.M. Dr. Turner: The Electrical Treatment of Nervous Diseases. (Post-graduate Course.)

THURSDAY.—ROYAL INSTITUTION.—3 P.M. Mr. S. R. Gardiner: Three Periods of Seventeenth Century History—II. The Commonwealth.

LONDON POST-GRADUATE COURSE.—Hospital for Sick Children, Gt. Ormond-st., 3.30 P.M., Mr. L. Hudson: Spinal Rotation Curvature.—National Hospital for the Paralysed, Bloomsbury, 2 P.M., Dr. Ormerod: The Gait in Various Forms of Paralysis.—Central London Sick Asylum, Cleveland-st., W., 5.30 P.M., Mr. Barwell: Cases in the Wards.

SOCIETY OF ARTS.—4.30 P.M. Prof. Hubert Herkomer: Art Tuition.

ROYAL COLLEGE OF PHYSICIANS, LONDON.—5 P.M. Dr. Arthur Newsholme: Natural History and Affinity of Rheumatic Fever. (Fourth Milroy Lecture.)

FRIDAY.—LONDON POST-GRADUATE COURSE.—Bacteriological Laboratory, King's College, 3 to 5 P.M., Prof. Crookshank: Typhoid Fever and Diphtheria.

THE CANCER HOSPITAL (FREE) (Fulham-road, Brompton, S.W.).—4 P.M. Mr. W. H. Elam: Malignant Disease of the Thyroid.

ROYAL COLLEGE OF SURGEONS.—5 P.M. Prof. Charles Stewart: A Revision of the Endoskeleton in the Physiological Series in the Museum of the College.

ROYAL INSTITUTION.—9 P.M. Prof. Roberts-Austen: The Rarer Metals and their Alloys.

SATURDAY.—LONDON POST-GRADUATE COURSE.—Bethlem Hospital, 11 A.M., Dr. Craig: Insanity with Syphilis; Insanity with Organic Brain Disease.

ROYAL INSTITUTION.—3 P.M. Lord Rayleigh: Waves and Vibrations (III.).

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 7th, 1895.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Dry Bulb	Wet Bulb	Solar Radia in Vacuo	Maximum Temp. Shade	Min. Temp	Rainfall.	Remarks at 8.30 A.M.
Mar. 1	29·79	S.W.	43	41	57	48	35	...	Cloudy
,, 2	29·75	N.E.	36	34	73	41	34	0·05	Cloudy
,, 3	29·67	W.	29	Fzn.	68	39	27	...	Cloudy
,, 4	29·76	N.E.	30	Fzn.	69	40	28	0·01	Cloudy
,, 5	29·81	N.	35	33	69	42	30	0·07	Cloudy
,, 6	29·83	S.W.	38	36	54	44	35	...	Cloudy
,, 7	29·82	S.W.	39	38	44	40	36	0·09	Overcast

Notes, Short Comments & Answers to Correspondents.

EDITORIAL NOTICE.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this Office.

Lectures, original articles, and reports should be written on one side only of the paper.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers, not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET should be addressed "To the Manager."

We cannot undertake to return MSS. not used.

MANAGER'S NOTICE.

THE INDEX TO THE LANCET.

THE Index for the last half-year was published in our issue of Dec. 29th, which completed the second volume of the year 1894. Those of our subscribers who may wish to be supplied with loose copies can obtain the same (without extra charge) on making application to the Manager.

BOOKS ABOUT MEDICINE.

To the Editors of THE LANCET.

SIRS,—In Cordy Jeaffreson's "Book about Doctors," in the chapter about fees, I find: "Dr. Doran, with his characteristic erudition, says, 'Now, there is a religious reason why fees are not supposed to be taken by physicians. Amongst the Christian martyrs are reckoned the two eastern brothers Damion and Cosmas,'" &c. He goes on to say that they refused money, and were called "anargyri." I shall be much obliged if you or your readers can give me the title &c. of the work this is quoted from. I should also be glad to know what is the best modern general history of medicine in English. By this I mean a history

through all time and amongst all nations—not like Fort's Middle Ages or Wise's, the most modern I am acquainted with, but which is incorrectly entitled a "History of Medicine," as it deals merely with Asiatic developments. I do not want a translation. The only work I have at my disposal later than Hamilton is Meryon, but of this I have never been able to procure more than the first volume. Is any more published? I am, Sirs, yours truly,

Paris, March 3rd, 1895. ENQUIRER.

*** The words are unfamiliar to us, but perhaps some of our readers may recognise them. They may possibly be found in Tuckerman's "Collector"—a series of essays upon, among other things, authors, medical men, divines, and actors, which was for a time edited by Dr. John Doran. The most recent general history of Medicine is a small but wide-ranging work by Dr. Edward F. Withington, entitled "Medical History from the Earliest Times." Dr. C. L. Meryon's book, "Memoirs of Lady Hester Stanhope, as related by herself in Conversations with her Physician," was originally published in three volumes, but we are uncertain if this is the work to which our correspondent refers.—ED. L.

"SAVE ME FROM MY FRIENDS."

To the Editors of THE LANCET.

SIRS,—Illness prevented me seeing your issue of the 23rd ult. for some days after its publication, and on perusal I found that you had copied a paragraph which appeared about me in the *Glasgow Evening News* some time ago. Had reference been made to the subject in question in the lay press I should probably have thought it better to let it pass unnoticed. Seeing, however, that it has found its way into the columns of a medical journal of such high standing and repute as THE LANCET I think it due to myself to make the following explanation. Briefly stated, the facts which gave rise to the paragraph are these. When delivering a lecture to the Glasgow Society of Musicians I was interrupted by a gentleman who desired me to proceed at once to meet my friend, Dr. Anderson Robertson, in consultation. Unfortunately, the gentleman—the father of the patient—in his excitement did not send in a message, but interrupted me while speaking, and under the awkward circumstances I requested permission of the audience to speak to him in the side-room. There I learned the facts of the case, and sent to three surgeons in the neighbourhood in the hope that I might find a substitute. No one could be got, and I was therefore compelled, seeing the case was one of urgency, to go myself. I operated in the usual way, injected antitoxin, and left the case in the hands of my friend. I heard nothing whatever about it for some time afterwards, when Dr. Anderson Robertson called to say that the child was making a very good recovery. In the interval, by some means or other, the facts had become known to the editor of the *Glasgow Evening News*, and the paragraph which you copied in THE LANCET was the result. I have to thank you for assuming without explanation, as you do in your footnote, that I would regret the appearance of the article in question, and that it was not my own doing. I was in no way responsible, directly or indirectly, for this paragraph. It appeared in the *Glasgow Evening News* nearly three months ago, and even at this moment I am quite unconscious of any channel by which the newspaper received information upon the subject. I am, Sirs, yours faithfully,

Glasgow, March 5th, 1895. J. MACINTYRE.

*** We print Dr. Macintyre's letter with pleasure and note with equal pleasure that he recognised that we knew him to be no party to the unfortunately worded paragraph.—ED. L.

CRIME AND ITS FACILITIES.

To the Editors of THE LANCET.

SIRS,—The following is an interesting history of fatality occurring in a family. Some months ago a man was admitted into this hospital having been impaled on a steel drill on which he had fallen in a sitting position. He died two days after admission. I give very briefly his family history:—1. Father stabbed and killed in a quarrel. 2. Mother some twenty years after was murdered on the same spot with a stab from a knife. 3. Brother stabbed in the chest, and died some years after from the effects of it. 4. Brother killed by accident in the mine. 5. Brother found dead in the country; cause unknown. 6. Brother died from chest affection. 7. One brother alive, but lame as result of accident. 8. A cousin committed suicide by shooting himself. 9. The mother, while a widow, had a sweetheart who was murdered.

I am, Sirs, yours faithfully,

ROBERT J. MARSHALL, M.B., C.M.

Hospital, Rio Tinto, Spain, Feb. 25th, 1895.

MEDICAL FREEMASONS.

To the Editors of THE LANCET.

SIRS,—I observe from a paragraph in THE LANCET dated Feb. 23rd, that the Æsculapius Lodge has decided to entertain all medical masons that may attend the British Medical Association in August next. As one of the committee of the forthcoming meeting of the Association I look upon this masonic invitation as a most considerate, wise, and auspicious event. Let us as masons from all parts congregate together and strike a decisive blow which will tell the tale to the other members of our profession, and show them the firm basis, the true foundation, on which the order is built and the good fellowship that exists amongst us. I am, Sirs, yours truly,

J. NOBLE BREDIN.

Martins, Boughton Monchelsea, Kent, Feb. 23rd, 1895.

THE CASE OF MR. C. BRYAN TOWNSHEND.

THE following subscriptions have been received or promised, and are hereby acknowledged with grateful thanks:—

Mr. Henry Morris (London)	£5	5	0	Mr. Williams (Sherborne)	£1	1	0
Dr. T. Buzzard (London)	5	5	0	Dr. H. Atwood Beaver (Worcestershire)	1	0	0
Dr. Herbert R. Spencer (London)	2	2	0	Mr. W. Adams Frost (London)	1	1	0
Dr. Calthrop (London)	2	2	0	Dr. Turtle (Woodford)	1	1	0
Mr. F. Vacher (Birkenhead)	2	2	0	Dr. E. Hill (Western Hospital, Fulham)	0	10	0
Dr. Elliott (Bodmin)	1	0	0				

Further subscriptions are earnestly requested, and will be received and acknowledged by Rev. H. Townshend, 41, King Henry's-road, London, N.W.

F. V. D. is advised to apply to the deans of the schools of all the large hospitals. Bacteriological instruction is part of the curriculum at every school now, although the subject is not yet made compulsory in all examinations.

Mr. C. J. Lucas.—Only an experienced and skilled analyst and microscopist could undertake the inquiry, and even then the mode of preparation of the article, which is equally important, may defy discovery.

THE INFLUENZA EPIDEMIC.

To the Editors of THE LANCET.

SIRS,—I should be very much obliged if anyone could inform me whether in the present outbreak of influenza they have noticed that a great number of cases have presented very marked throat affections. A great number have lately come to me complaining of headache and pains in the back and limbs, often of a very severe character. On examining the throats in these cases I have found one or both tonsils to be frequently very enlarged and inflamed, and in many cases resembling somewhat a follicular tonsillitis. The uvula in nearly all cases has been markedly elongated, the soft palate highly inflamed, and the pharynx of a very dark red colour and usually dry. The tongue at first is coated with more or less greyish-white fur; but in twenty-four or forty-eight hours it has cleaned at the tip and edges, and presents a great many enlarged and prominent dark-red fungiform papillæ, giving the tongue a strawberry appearance. The temperature for the first forty-eight hours or less ranges between 100° and 103° F. After this it generally quickly subsides to normal or subnormal, and the patient feels quite well, with the exception, however, now and then of rheumatic-like pains occurring in the back and limbs. The throat lesions, however, last from two to three weeks or more; but, curiously enough, in the majority of cases there is no pain on swallowing—in fact, the patient often does not complain of his throat at all, and inflammation there is only found on examination. Now and then there is a little pain and tenderness in the glands of the neck. In about one quarter of the cases there has been a rash, usually of a roseolous or erythematous character, sometimes, however, resembling urticaria. Its usual position is on the chest and arms, and often on the knees and outsides of the legs; it is of a very evanescent character as a rule. The chest may be a brilliant red at one time, and an hour or two later this redness may have quite disappeared, perhaps, however, to show itself on another part of the body. I have been so struck with the similarity of the throat and mouth affections &c. in so many cases that I should like to hear whether other observers have noticed the same signs &c.

I am, Sirs, yours faithfully,

Guildford, March 4th, 1895. JOHN TERRY.

"THE MEDICO-BOTANICO SOCIETY."

To the Editors of THE LANCET.

SIRS,—Your correspondent "Questor" will find an account of the "Royal Medico-Botanical Society" in Clarke's "Recollections of the Medical Profession," pp. 240, 267. He may also like to have his attention drawn to the notice of John Frost in the "Dictionary of National Biography." I am, Sirs, yours truly,

March 4th, 1895. JAS. B. BAILEY.

To the Editors of THE LANCET.

SIRS,—In answer to your correspondent's question in your issue of March 2nd in reference to the Royal Medico-Botanical Society, there is a good account in Chapter 22 of the late Mr. J. F. Clarke's "Autobiographical Reminiscences of the Medical Profession," London, Churchill, 1874, and of Dr. Sigmond in "Pettigrew's Medical Portrait Gallery," vol. iii., as well as in Forbes Winslow's "Physic and Physicians," vol. ii., London, second edition, Longmans, 1840.

I am, Sirs, yours faithfully,

March 5th, 1895. D'A. P.

A SUGGESTION.

To the Editors of THE LANCET.

SIRS,—Allow me to propose that there should be a gathering of the London and provincial octogenarians and upwards of the medical profession. Such a reunion would form an epoch in medical history. I would suggest a soirée, where we might agreeably discuss the past and present. I remain, Sirs, yours faithfully,

March 2nd, 1895. OCTOGENARIAN.

P.S.—I have been a reader of THE LANCET since 1836.

*** We have much pleasure in printing our correspondent's suggestion; the nature and risks of their calling give to the octogenarian practitioners the right to be proud of their age. But if he desires to be a nonagenarian he had better not travel about to meetings until the weather is a little milder.—ED. L.

UNREASONABLE CHARGES AGAINST MEDICAL MEN.

THE *Western Mail* describes a very unseemly scene—or, as the coroner said, "a disgusting and disgraceful scene"—at an inquest at Cardiff on the body of Amelia Crago, aged thirteen. The mother of the child raged furiously at Dr. Milward for not going to see her child, and maintained that had he gone the child's life would have been saved. It was necessary finally to expel the woman from the court, when Dr. Milward explained his action to the satisfaction of the court. He advised at once, speaking from his bedroom through the tube, what should be done. In a few minutes he got a message of the death of the child. The jury found that the child had died from natural causes, and that no blame attached to him. The coroner was surprised at the violence of the attack on Dr. Milward, and said that in some of these cases there was no use in getting the people to give evidence until after the funeral. It is not necessary to judge too harshly a woman under poignant parental grief, especially when a coroner and jury combine to protect the medical man; but, all the same, it is hard on our profession to be so unjustly blamed.

Mr. Joseph W. Asprey.—A long report dealing exhaustively with this subject was published in THE LANCET of Nov. 25th, 1893, by THE LANCET Special Analytical Sanitary Commission. Copies of the reprint of this report may be had on application to the publisher.

F. D.—We regret to be unable to oblige our correspondent. It is a rule in our procedure from which we never depart that we do not recommend individual practitioners. But our correspondent's family medical man could give him the information he desires.

J. J. W.—We do not think there can be any objection taken to the proposal

"THE EXPLOITS OF A BONESETTER."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Feb. 23rd I see a letter concerning the "Exploits of a Bonesetter," which has very much surprised me, because of the fact that it was written by a professional medical gentleman. What has been said concerning the "bonesetter" is, unfortunately, of frequent occurrence almost everywhere in the provinces, and as no good has ever come from our noticing such matters, or is ever likely to come from our doing so while the law acts so as to partially cover such practice, I should have thought that no medical man would have needed even the least hint as to his guidance on the points referred to by your correspondent, "Fair Play." I fail to understand how there can be the slightest doubt in any reasonable brother's mind upon the matter of his "attitude" towards all "unqualified" persons presuming to practise medicine or surgery; but lest "Fair Play" has failed to appreciate fully his professional position and privileges, I would reply to his queries:—1. Adopt neither of the alternatives mentioned, which are unprofessional in every respect. 2. There is no law to "compel" any agricultural labourer or other individual to leave his ordinary avocation in life and "qualify" to practise medicine or surgery. Why should there be? Far too many of such enter our medical schools in order "to qualify" without any compulsion. 3. I shall leave this question to the General Medical Council to answer. Enough has been said by me to indicate my own personal opinion on this point.—I remain, Sirs, yours faithfully,

Feb. 26th, 1895. S. W. W.

WANTED, A UNIVERSITY DEGREE.

To the Editors of THE LANCET.

SIRS,—Is there any university in the old country where a man who has been in practice ten years, holding double Royal English qualification, could obtain a degree upon passing a more or less purely practical examination? By way of Arts qualification the London University Matriculation Certificate is held.

I am, Sirs, your obedient servant,

Feb. 10th, 1895. TRANSVAAL.

*** No. The Students' Number of THE LANCET, published in the first week of every September, will give our correspondent full information on the subject, and he will there see exactly what facilities one or two universities offer.—ED. L.

THE JOURNAL OF COMPARATIVE PATHOLOGY AND THERAPEUTICS.

To the Editors of THE LANCET.

SIRS,—Can any of your readers tell me in what library I might hope to find a serial entitled "Journal of Comparative Pathology and Therapeutics"? It is not in the library of the Royal College of Surgeons of England or in that of the Royal Medical and Chirurgical Society. In what year did it first come out? I am, Sirs, yours truly,

Feb. 27th, 1895. F.R.S.

WANTED A CONVALESCENT HOME FOR A SMALL-POX PATIENT.

To the Editors of THE LANCET.

SIRS,—Can any of your readers inform me of a convalescent home where a small-pox patient would be received, and tell me at the same time the charges that would be incurred and the formalities that must be gone through? I am, Sirs, yours faithfully,

March 5th, 1895. A. N.

DEATH OF THREE OCTOGENARIAN BROTHERS.

THERE have just occurred, says the *Liverpool Daily Post*, at New Brighton three deaths which, by virtue of several circumstances, are worth more than a passing notice. Mr. Richard Owen Coulborn died on Saturday, the 23rd ult., in his eighty-third year. On the following Thursday his brother, Mr. Edward Warburton Coulborn, departed this life in his eighty-fifth year; and on the following Saturday a third brother, Mr. William Rushton Coulborn, was gathered to his fathers in his eighty-sixth year. All three brothers, who were the late owners of a ferry-boat service, lived and died in the same house, forming a remarkable example of a fact that is frequently seen—that where people have spent their lives together, in their death they are often not divided.

Inspector-General, R.N.—The success of the holders of the diplomas of the Conjoint Board of the Royal College of Physicians, London, and the Royal College of Surgeons of England has been made the subject of comment in our columns. Our correspondent's communication should, we think, have been signed.

W. H. H.—We cannot answer our correspondent's question; but his medical attendant would probably oblige him in the matter.

Temperance.—The Pasteurising process was inspected and examined by our Commissioners at 20, High Holborn, W.C.

Inquirer.—Finkler's papain was, we are informed, used in most, if not in every, case to which the paper refers.

CLINICAL INSTRUCTION FOR THE GRADUATE.

To the Editors of THE LANCET.

SIRS,—I beg to call your attention to a want which has been in existence for a great many years. After wandering about or resting in some isolated spot for ten or fifteen years, the zealous practitioner finds that it is desirable and often essential that he should return to his studies and regain some knowledge *in statu pupillari*. As an invariable result, however, such an individual will find himself regarded and tolerated as a sort of harmless lunatic. Such, at all events, has been the experience of myself and others who have endeavoured to take up work again. For instance, one man wished to go over the operations on the cadaver in order to give him some idea as to how the major operations are performed, another was seeking for instruction in the practical and theoretical subjects found in the examination for an M.D.'s degree, and again another required to work up for the Final M.B. Lond. I am quite sure that this want has only to be made known in order that provision may be made for men of maturer years, and thereby they may be able to profit to the fullest extent during the limited months or years which they may be able to set aside. Trusting that this letter may elicit some suggestions,

I remain, Sirs, yours faithfully,

March 4th, 1895. 1ST M.B.

*** The post-graduate lectures meet some of our correspondent's wants. For the rest his old hospital would surely welcome him back on payment of the usual fees, and it is hard to believe that either students or teachers would look upon his return to study as other than a very reasonable and praiseworthy course.—ED. L.

MRS. GUTHRIE RELIEF FUND.

To the Editors of THE LANCET.

SIRS,—I have to acknowledge with most sincere thanks the following donations and subscriptions:—

Sir Joseph Lister, Bart....	£10	0	0	Mr. C. J. Woollett	£1	1	0
Sir Jas. Paget	2	2	0	Rev. C. W. Bond, M.A.,			
Mr. R. J. Godlee*	1	1	0	St. Nicholas, Brighton	1	1	0
Mr. Stanley Boyd† ...	1	1	0	Mr. J. H. Morgan	1	1	0

* With a promise of £1 1s. each half-year if required.
† And £1 1s. each half-year during Mrs. Guthrie's lifetime.

I am, Sirs, your obedient servant,

March 6th, 1895. M. R. BRANDRETH.

During the week marked copies of the following newspapers have been received:—*North British Daily Mail, Brighton Argus, Hornsey Journal, Merthyr Express-News, Bedford Standard, Salisbury Journal, Brighton Post, Bridge of Allan Reporter, Wigan Examiner, Essex Telegraph, Darwen Post, Leicester Post, Newcastle Chronicle, Bristol Times, Eastern Morning News, Liverpool Courier, Cincinnati Tribune, Yorkshire Post, Times of India, Citizen, Liverpool Daily Post, Builder, City Press, Bristol Mercury, Architect, Sanitary Record, Leeds Mercury, Pioneer Mail, Mining Journal, Local Government Chronicle, West Middlesex Standard, Hertfordshire Mercury, Christian World, Reading Mercury, Weekly Free Press and Aberdeen Herald, South Lambeth Monthly, Surrey Advertiser, Local Government Journal, West Middlesex Advertiser, Wellington Post, Dover Express, Hereford Times, Kent Messenger, Bath Chronicle, Scotsman, Express and Star, Norfolk Standard, Carpenter and Builder, Levant Herald, Man of the World, Woodbridge Reporter, Lincolnshire Chronicle, Lincoln Gazette, Carlisle Journal, Australian Medical Journal, Nursing Record, North Cheshire Herald, Blackburn Telegraph, Galignani Messenger, Madras Times, Cape Argus, Mayo Examiner, Rosshire Journal, Westmorland Gazette, Oldham Evening Chronicle, &c., &c.*

Communications, Letters &c. have been received from—

A.—Dr. T. Clifford Allbutt, Lond.; Mr. H. Alston, Trinidad; Mr. J. W. Alexander, Rainhill; Rev. J. W. Atkinson, Lond.; Alliance Assur. Co., Lond., Sec. of; Alpha, Lond.

B.—Dr. T. Lauder Brunton, Lond.; Mr. J. B. Bailey, Lond.; Dr. B. Beer, Cannes; Dr. P. Bobbyer, Nottingham; Dr. S. K. Basu, Patna City; Dr. A. H. Bampton, Ilkley; Mr. L. A. Bidwell, Lond.; Mr. J. W. Barnes, Lond.; Mr. W. C. Bosanquet, Lond.; Mr. D. Bamany, Bombay; Mr. T. H. Brocklehurst, Weymouth; Mr. J. N. Bredin, Maidstone; Mr. R. Baker, Lond.; Mr. W. Brown, Swansea; Mr. M. R. Brandreth, Brighton; Mr. H. R. H. Bigg, Lond.; Mr. C. Butler, Lond.; Mr. J. P. Bush, Clifton; Mr. T. B. Browne, Lond.; Mrs. E. Bielby, Lahore, Punjab.; Messrs. Burroughs, Wellcome, and Co., Lond.; Messrs. J. Benn and Bros., Lond.; Messrs. Blondeau et Cie., Lond.; *Birmingham Daily Gazette*, Publisher of; Brit. Gynecol. Soc., Lond., Sec. of.

C.—Dr. M. Charteris, Glasgow; Dr. C. Coppinger, Dublin; Dr. N. Christoff, Varna; Mr. H. Case, Staveley; Messrs. T. Christy and Co., Lond.; Messrs. Cassell and Co., Lond.; Messrs. J. and A. Churchill, Lond.; Civil Rights Defence Committee, Secretarial Committee of, Lond.; C.T., Lond.

D.—Dr. G. A. Dickinson, Regina, Canada; Dr. J. W. Dalgliesh, Bloemfontein, Orange Free State; Mr. M. S. Dalgliesh, Newcastle-on-Tyne; Messrs. Davies, Turner, and Co., Lond.; Messrs. Davids and Maxwell, Banbury; Messrs. S. Deacon and Co., Lond.; Devon, Lond.

E.—Messrs. Eason & Son, Dublin; East End Mothers' Home, Lond., Sec. of; Enquirer.

F.—Dr. Livius First, Berlin; Messrs. Ferris and Co., Bristol; Messrs. Fannin and Co., Dublin; Fisherton House, Salisbury, Med. Supt. of; F.R.C.S., Lond.

G.—Prof. J. Griffiths, Cambridge; Dr. F. W. Grant, Elgin; Dr. Groedel, Bad Nauheim; Major-Gen. Graham, Lond.; Glasgow Dist. Lunacy Board, Clerk of; Govan Parochial Asyl., Paisley, Sec. of; Gordon Technical Coll., Geelong, Australia, Sec. of.

H.—Dr. G. A. Heron, Lond.; Dr. W. S. Hedley, Brighton; Dr. S. H. House, Grimsby; Dr. T. W. Hime, Bradford; Mr. R. B. Hunt, Lond.; Mr. H. W. Hart, Cathcart, Cape Colony; Mr. A. Haviland, Buxton; Mr. A. E. Hughes, Sheffield; Mr. J. Heywood, Manchester; Mr. E. H. Hankin, Lucknow; Messrs. C. J. Hewlett and Son., Lond.; Messrs. G. Hardy and Co., Lond.; Hendon Grove Asyl., Resid. Phys. of; H. W., Lond.; H. J. L. W.

J.—Sir George Johnson, Lond.; Dr. C. H. L. Johnston, St. John, N.B.; Mr. H. W. Jones, Lond.; Mr. W. Jones, Blaenavon; Rev. H. Jones, Lond.; J. D. R. M., Birkenhead; J. J. W., Bandon.

K.—Mr. S. Keith, Lond.; Messrs. Kenyon and Lord, Manchester.

L.—Dr. W. S. Lazarus-Barlow, Camb.; Mr. C. J. Lucas, Dublin; Mr. C. B. Lockwood, Lond.; Mr. T. P. Lowe, Bath; Mr. J. M. Levi, Lond.; Mr. F. Legg, Cirencester; Lond. Hosp., House Governor of; Laryngolog. Soc. of Lond., Hon. Secs. of; Leeds and West Riding Med.-Chir. Soc., Hon. Secs. of; Liq. Carnis Co., Aston Clinton; Leeds Gen. Infy., Sec. of.

M.—Dr. F. W. Mott, Lond.; Dr. J. Macintyre, Glasgow; Dr. C. E. Matthews, Lond.; Dr. L. G. S. Molloy, Blackpool; Dr. J. D. R. Monro, Birkenhead; Dr. J. L. Maxwell, Lond.; Dr. J. P. Munroe, Davidson, N.C., U.S.A.; Dr. M. McDonald, Liverpool; Mr. C. M. Moullin, Lond.; Mr. J. D. Malcolm, Lond.; Mr. F. L. Mills, Lond; Mr. R. W. Marston, Berne; Mr. R. D. Morgan, Cleveden; Mr. J. Macready, Lond.; Mr. F. Marshall, Lond.; Messrs. A. Martin and Co., Lond.; Messrs. J. Maythorn and Son, Biggleswade; Med. Soc. of Lond., Hon. Sec. of; Mullingar Dist. Asyl., Resid. Med. Supt. of; Melton Chemical Co., Glasgow; McMurray's Roy. Paper Mills, Wandsworth, Sec. of; Medicus, Lond.; Mot, Lond.; M.D., M.R.C.P.

N.—Dr. D. G. Newton, Sheffield; Dr. E. Norton, Folkestone; N.B., Lond.; North, Lond.

O.—Dr. T. Oliver, Newcastle-on-Tyne; Oldham Infirmary, Sec. of; Oppenheimer, Son and Co., Ltd., Lond.

P.—Dr. Paxton, Sunderland; Mr. D'Arcy Power, Lond.; Mr. M. Pattenhausen, Lond.; Mr. Y. J. Pentland, Edin.; Mr. M. Perceval, Isisford Hosp., Queensland; Mr. F. B. Phillips, Bedford; P. K., Ottery St. Mary.

Q.—*Queensland Government Gaz.*, Editor of.

R.—Dr. L. Remfry, Lond.; Dr. H. D. Rolleston, Lond.; Dr. M. A. Ruffer, Lond.; Dr. L. Roberts, Liverpool; Dr. G. C. Ross, Manchester; Dr. P. H. Ryan, Maidstone; Mr. Henry Renshaw, Lond.; Mr. J. Reid, Vienna; Mr. R. Richards, Lond.; Mr. A. Roche, Dublin; Mr. C. H. Robinson, Kingstown; Mr. D. Robins, Lond.; Messrs. Roberts and Co., Lond.; Royal Free Hosp., Lond., Sec. of; Radcliffe Infirmary, Oxford, Sec. of; Rainhill County Asylum, Sec. of.

S.—Dr. H. Sainsbury, Lond.; Dr. G. H. Savage, Lond.; Dr. J. Shaw, Lond.; Dr. Shuttleworth, Richmond; Dr. W. W. Smith, Lond.; Prof. W. R. Smith, Lond.; Mr. T. Smith, Lond.; Messrs. G. Street and Co., Lond.; Sun Life Assurance Society, Lond., Sec. of; Soc. of Medical Phonographers, Lond., Hon. Sec. of.

T.—Sir H. Thompson, Lond.; Dr. T. Telford-Smith, Lancaster; Dr. J. C. Thresh, Chelmsford; Mr. A. A. Tapper, Lond.; Mr. Thelwall, Lond.; Mr. J. Toppin, Bristol; Mr. J. Thin, Edinburgh; Mr. R. S. Trotter, Aberdeen; Thirteenth Exposition de Bordeaux, Gen. Sec. of.

U.—University of Durham, Newcastle-on-Tyne, Registrar of; Ulna, Lond.

V.—Dr. E. V. Von Tunzelmann, Chefoo.

W.—Dr. H. Woods, Lond.; Dr. W. Wilson, Pontypool; Dr. F. Webb, Basingstoke; Mr. J. P. Walker, Rochdale; Mr. H. G. L. Wales, Lond.; Mr. R. Willoughby, Liverpool; Herr G. Wergand, Hamburg; Messrs. W. Wood and Co., New York; Messrs. J. Wright and Co., Bristol; Westphalite Syndicate Co., Ltd., Lond.; Western General Dispensary, Lond., Hon. Sec. of.

Letters, each with enclosure, are also acknowledged from—

A.—Dr. Adams, Brighton; Dr. E. Allen, Hawes; Mr. R. R. Anderson, Carmarthen; Apollinaris Co., Lond.; A., Lond.; A. B. C., Ryde.

B.—Dr. F. Bagshawe, St. Leonards-on-Sea; Dr. J. C. Bowie, Clousta, Shetland; Mr. H. Butterfield, Northampton; Messrs. Blake, Sandford, and Blake, Lond.; Messrs. Burgoyne, Burbidges, and Co., Lond.; Battersea Rise 57.

C.—Dr. J. Cooke, Lincoln, Canterbury; Mr. W. F. Clay, Edinburgh; Mr. Collier, Sheffield; Mr. C. Candler, Melbourne; Mr. H. H. Crickett, Worcester; Miss J. Chalcraft, Liphook; Christopher, Lond.; C. T., Lond.

D.—Mr. M. J. Doida, Haverhill; Mrs. Dalgliesh, Newcastle-on-Tyne; Messrs. Davies and Co., Holywell; *Daily Free Press*, Aberdeen, Proprietors of; Devon, Lond.; Daring, Lond.

E.—Mr. W. P. Everard, Athlone; E. G., Lond.; Energy, Lond.

F.—Dr. Forsayett, Attleborough; Dr. R. B. Ferguson, Lond.; Dr. S. Focas, Cephalonia, Greece; Mr. T. W. Fowler, Coventry; Messrs. Faber, Fawcett, and Faber, Stockton-on-Tees; First Alpine Swiss Co., Lond.

G.—Mr. L. A. Green, Huddersfield; Mr. J. E. Good, Dunley; G. L., Lond.

H.—Dr. E. R. Holmes, Shifnal; Mr. H. Hutchinson, Eccleshall; Mr. W. H. Hosking, Masterton, N.Z.; Mrs. Hooper, Lond.; Messrs. T. Hopkinson and Co., Nottingham.

I.—Mr. A. T. Ilott, Truro.

J.—Mr. R. Johnson, Gringley-on-the-Hill; J. S. S. S., Lond.; J. H. F., Liverpool; J. H., Lond.; J. D. A., Bath.

K.—Mr. T. B. Knott, Cheadle Hulme; Messrs. Kenyon and Lord, Manchester; Messrs. H. and F. Knowles, St. Helen's.

L.—Dr. L. T. Lancaster, Clitheroe; Mr. A. Latham, Shillingham; Mr. S. J. Lilley, Leicester; Liq. Carnis Co., Aston Clinton; Ledger, Lond.

M.—Dr. J. D. Malcolm, Lond.; Dr. A. H. H. McMurtry, Belfast; Mr. R. F. Morgan, Clevedon; Mr. J. McKeague, Lond.; Mr. E. L. Mellins, Brighton; Mr. K. McElfatrick, Leicester; Messrs. Mertens and Co., Lond.; Medicus, Staveley; M.B., Lond.; M., Lond.; M., Beverley; Medical Superintendent, Lond.; M. S., Lond.; Medicus, Lond.

N.—Dr. Nuttall, Bury; Mr. G. Newborn, Epworth; North Wales County Lunatic Asyl., Denbigh, Supt. of; Nucleus, Lond.; Nimrod, Lond.

O.—Omega, Lond.

P.—Mr. J. E. S. Passmore, Gainsborough; Mr. M. S. P. Pritchard, Lond.; Mr. J. V. Pestana, Singapore; Price's Patent Candle Co., Lond., Managing Director of.

R.—Dr. E. A. Roberts, Lond.; Rainhall County Asyl., Clerk of; Recipe, Lond.

S.—Dr. J. B. Stewart, Dennistown; Mr. J. W. Scriven, Lond.; Mr. J. T. Sarll, Lond.; Messrs. Slinger and Son, York; Messrs. Souter, Mackenzie, and Co., Dover; *Sunderland Post* Co., Manager of; Scarpa, Lond.; Sussex, Lond.

T.—Mr. L. Thelwall, Lond.; Mr. T. W. Twyford, Hanley; Messrs. Towers, Ellis and Co., Lond.; Tower House Retreat, Westgate-on-Sea, Sec. of.

V.—Vigor, Lond.

W.—Mr. P. Williams, Market Drayton; Mr. T. F. Wyse, Cloyne, co. Cork; Mr. R. J. Wylie, Littleport; W. H., Lond.

X.—X. Y. Z., Lond.

SUBSCRIPTION.

POST FREE TO ANY PART OF THE UNITED KINGDOM.

One Year	£1 12 6
Six Months	0 16 3
Three Months	0 8 2

POST FREE TO THE CONTINENT, COLONIES, UNITED STATES, INDIA, CHINA, AND ALL PLACES ABROAD.

One Year	£1 14 8
Six Months	0 17 4
Three Months	0 8 8

Subscriptions (which may commence at any time) are payable in advance.

Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to Mr. CHARLES GOOD, Manager, THE LANCET Office, 423, Strand, London.

ADVERTISING.

Books and Publications ...	Seven Lines and under	£0 5 0
Official and General Announcements	Ditto	0 5 0
Trade and Miscellaneous Advertisements	Ditto	0 4 6
	Every additional Line	0 0 6
First Page (under Contents) (Books only)	when space available Five Lines and under	0 5 0
	Every additional Line	0 1 0
Quarter Page		1 10 0
Half a Page		2 15 0
An Entire Page		5 5 0

Terms for Position Pages and Serial Insertions on application.

NOTICE.—Advertisers are requested to observe that it is contrary to the Postal Regulations to receive at Post Offices letters addressed to fictitious names or initials only.

An original and novel feature of "THE LANCET General Advertiser" is a special Index to Advertisements on pages 2 and 4, which not only affords a ready means of finding any notice, but is in itself an *additional* advertisement.

Advertisements (to ensure insertion the same week) should be delivered at the Office not later than Wednesday, accompanied by a remittance.

Answers are now received at this Office, by special arrangement, to Advertisements appearing in THE LANCET.

The Manager cannot hold himself responsible for the return of testimonials &c. sent to the Office in reply to advertisements; copies only should be forwarded.

Terms for Serial Insertions may be obtained of the Manager, to whom all letters relating to Advertisements or Subscriptions should be addressed.

THE LANCET can be obtained at all Messrs. W. H. Smith and Son's and other Railway Bookstalls throughout the United Kingdom. Advertisements are also received by them and all other Advertising Agents.

Agent for the Advertisement Department in France—J. ASTIER, 8, Rue Traversière, Asnieres, Paris.